

THE NATIONAL METALWORKING WEEKLY • OCTOBER 7, 1954

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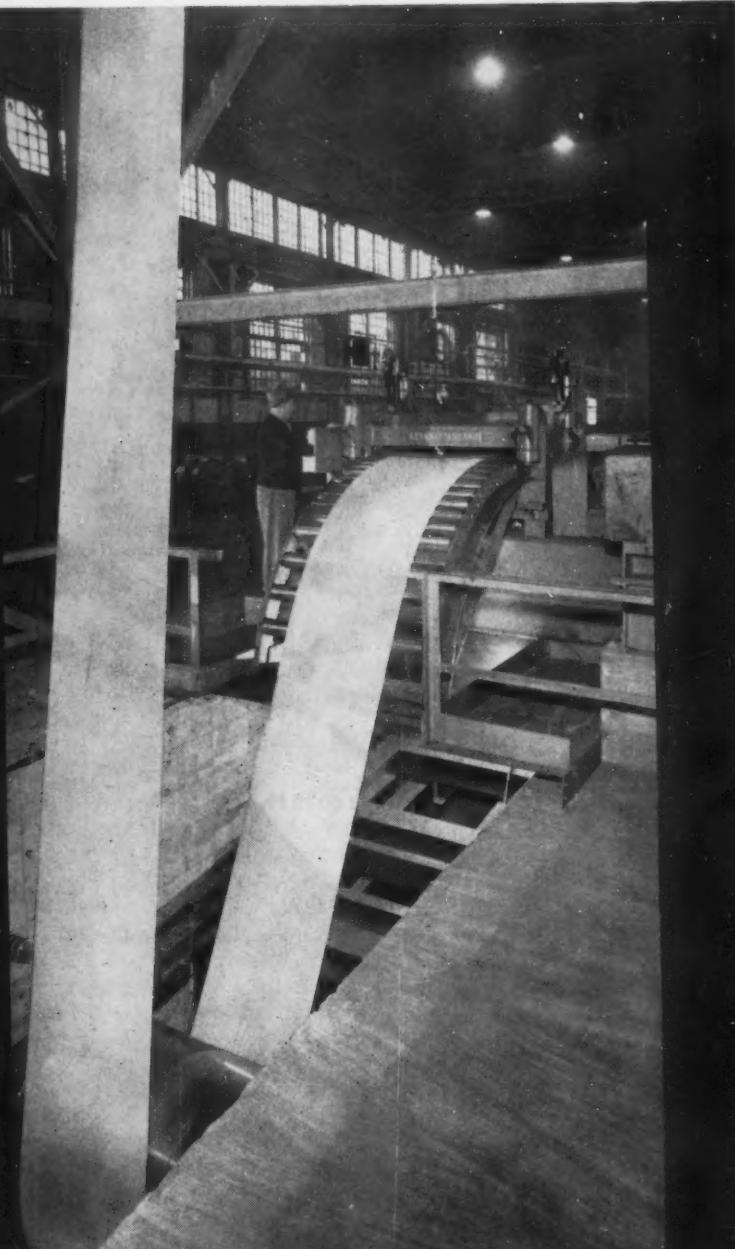
CONTINUOUS GALVANIZING LINES BUILT BY AETNA

Lines 12-13-14-15-16 started up within last 12 months.

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• The 21st Aetna-built Continuous Galvanizing Line could be yours. If you are considering a Continuous Galvanizing Line, you probably have ideas about the most practical process for your production. The lines offered by Aetna-Standard include all of the different processes and types in use today. This ability to combine specialized knowledge of Continuous Galvanizing with your own specific ideas is a principal reason for Aetna's building more lines than all other manufacturers. Add the most important requirement of all—performance of the equipment, plus integrity and ability to work with people and you have some of the reasons why more companies select Aetna-Standard than any other manufacturer to build their Continuous Galvanizing Lines.

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Aetna-Standard

PLANTS IN WARREN, OHIO • ELLWOOD CITY, PENNSYLVANIA

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Hoskins Chromel-Alumel thermocouple alloys accurately register exhaust temperatures of jet aircraft engines.



Heating elements made of Hoskins Chromel give long life service in industrial electric furnaces, home appliances.



Hot stuff for hot jobs! Hoskins Alloy 502 is widely used by industry for many heat resistant mechanical applications.

You're looking in on a life-saving operation . . . one that's being performed on an engine valve. Not an ordinary valve for an ordinary engine. But a valve destined for long, hard service in an aircraft, tank, or heavy-duty truck engine. A valve that must be made to stand up under extremely severe operating conditions . . . high temperatures, for long periods of time, plus the destructive corrosive action of hot exhaust gases.

And what's responsible for long valve life under such gruelling conditions? Nothing less than Hoskins Alloy 717 . . . a closely controlled nickel-chromium composition developed especially for just such tough and vital service. It's highly resistant to heat . . . immune to the corrosive atmospheres created by combustion of high octane fuels. What's more, it's readily applied

by fusion to form a non-porous protective facing over the basic valve forging.

But 717 is only one of several specialized nickel-chromium alloys developed and produced by Hoskins. Among the others: Alloy 502 . . . known throughout industry for its dependability on a wide range of heat resistant mechanical applications. The Chromel-Alumel thermocouple alloys . . . unconditionally guaranteed to register true temperature-E.M.F. values within specified close limits. Spark plug electrode alloys which have become universally accepted standards of quality and durability. And, of course, there's Hoskins CHROME . . . the original nickel-chromium resistance alloy used as heating elements and cold resistors in countless different products.

HOSKINS
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Saw



THE OBSERVER oversees metallurgical testing of the metal and the slag. The carbometer test, being poured here, determines carbon content, serves as a guide for arriving at the proper analysis.



HE WATCHES temperature-taking with Bethlehem's extremely accurate immersion thermocouple. This reading helps determine the exact time for tapping the heat.



HE'S ON HAND DURING TAPPING to record the data that is so essential for satisfactory metallurgical control. He also computes the amount of deoxidizer to be added to the ladle.



ON THE SPOT when the metal is being teemed into ingot molds, he sees that proper practices are followed, and makes sure that the stream is tight to avoid splashing.

The Fellow Who Follows the Heat

Scrupulous metallurgical control is one of the chief reasons why Bethlehem Hot-Rolled Carbon Steel Bars are good bars. And the key man responsible for metallurgical quality-control in the open-hearth department is the observer.

He's the man who literally follows the heat, making sure that high quality standards are adhered to, and proper operating practices followed every step of the way.

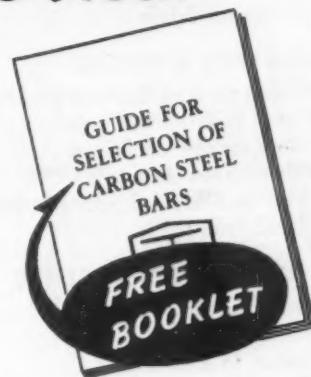
This almost fanatic insistence on quality-control in the open hearth — yes, and in the raw-material stockyards, around the

blast furnaces and in the rolling mills — results in a product that is uniformly up to end-use requirements.

Why not try Bethlehem Hot-Rolled Carbon Steel Bars? Your order will be promptly handled by the nearest Bethlehem sales office. We suggest that you write them, or give them a call, today.

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32 pages of information to help the user in some of the important decisions in selecting carbon bars to fit his needs. Includes 6 pages of useful engineering data. Address Publications Dept., Bethlehem Steel Company, Bethlehem, Pa.

BETHLEHEM HOT-ROLLED CARBON BARS

STANDARD SECTIONS • SPECIAL SECTIONS • BAR SIZE SHAPES



Vol. 174, No. 15, October 7, 1954

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NEWS DEVELOPMENTS

GLOOMY FOUNDERS SEE UPTURN, MAYBE — P. 67
Booming construction is keeping pipe and plumbing foundries on two 48-hour shifts weekly. But other segments of the foundry industry are down as low as 2-3 day operations. Backlogs range from 60 days plus to overnight—and deliveries are being made on a 24-hour basis by some. Buying by automotive, railroad, steel industries is low. Autos should pick up and steel mill purchases should climb if the ingot rate continues to rise.

HOW TO SAVE TAX MONEY FOR YOUR HEIRS — P. 74
Inheritance taxes can be a serious drain on your estate. But proper planning can hold these taxes to a minimum, result in substantial savings for your heirs. Part III of an Iron Age series.

FOUNDRIES UPDATE MATERIALS HANDLING — P. 77
Modern foundries are installing more cranes, trucks, conveyors to cut time spent handling bulky raw materials. Surveys show foundries handle 120 tons of unfinished material for every ton of castings.

U.S. VETOES BETHLEHEM-YOUNGSTOWN MERGER — P. 71
Government disapproval of the Bethlehem-Youngstown merger is a disappointing setback to the firms. But it leaves the merger door cracked a trifle for any future effort by these or other steel companies. Disapproval applied to the plan only, did not ban presentation of new merger proposal.

NEW LOOK LABOR LEADERSHIP WILL PAY OFF — P. 87
USW head David McDonald has brought a new look to labor leadership with his philosophy that labor has equal responsibility with management for the economic well-being of the industry, its employees, stockholders. Mr. McDonald's critics will be ready to lower the boom if the velvet glove approach doesn't pay off. But odds are that it will. So long as he remains a "right wing" labor leader, steel companies will do everything they can to make him look good.

READY NEW DRIVE FOR STANDBY CONTROLS — P. 97
When the new Congress convenes discussions will soon begin on injecting price, wage and credit controls into the Defense Production Act. Law expires June 30. Lawmakers agree that some extension is needed—but they don't agree on how much.

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ENGINEERING & PRODUCTION

LEADED STEELS CUT PRODUCTION COSTS — P. 117
Improved leaded steels can help cut part production costs where machinability rather than mechanical properties is a deciding factor in material selection. Decision to use these steels must be based on careful assessment of present costs as well as potential for reduction in part costs through improved machinability.

TIME STUDIES AID DIVERSIFIED PLATING — P. 122
Techniques developed from time studies, plus flexibility in shop layout now permit diversified plating with ease and efficiency with relatively few workers.

CORRUGATED POTS SIMPLIFY SLAG HANDLING — P. 125
Extra capacity cast-steel slag containers with corrugated walls are doing an efficient, economical job of slag handling and disposal at one steel company.

VERSATILITY, EFFICIENCY IN CONVEYORS — P. 126
Parts handling at a large cold extrusion plant is almost completely conveyorized for maximum handling efficiency. Along with simplicity and ease of maintenance, versatility was an important factor considered in setting up the system. Flexibility was necessary to meet future product requirements and present needs.

SHELL MOLDING MACHINE FOR SMALL SHOPS — P. 130
New, simplified equipment is available for handling experimental or job casting work. Shell molds and shell cores may be made separately or simultaneously. Machines require little physical effort; makes "one-man" foundry idea more practical.

NEXT WEEK:

IMPROVED PROCESS CONTROL ASSURES ECONOMY
Improved control of foundry operations can bring the advantages of extra low-carbon stainless steels in the 18-8 and 18-8Mo grades to the user of cast parts on an economical basis. The production method worked out by one steel foundry requires close control of scrap and extra care in melting and cleaning.

October 7, 1954

MARKETS & PRICES

COMPLETE ALLEGHENY EXPANSION PROGRAM — P. 71
A "New Look" has been achieved by Allegheny Ludlum's 9-year, \$96 million expansion program. Program ended last week with completion of the new 56-in. cold mill. Program's main aim was to convert production from cut lengths to coils in keeping with trend of consumer desires. Firm is now in its best competitive position in history.

REPUBLIC ABANDONS DELIVERED PRICING — P. 73
"Noble experiment" in quoting delivered base prices ends as Republic Steel returns to f.o.b. mill system. Republic still likes it—and so do some of its larger customers—but many smaller ones objected. Had others followed, system might have stuck.

STEEL ORDER UPTREND GAINS MOMENTUM — P. 177
Pick-up in orders from steel consumers is emerging as a major new trend in the steel business. Industry executives are more cheerful than they have been for some months, anticipate a still faster tempo of new orders this month. Automotive buying is on the upturn, but it is notable that this is still not the major force behind the order rise.

STEEL ORDER BOOKS REFLECT UPTURN — P. 178
Although autobuilders haven't started heavy buying yet Detroit producers have stepped up production in anticipation. Order books reflect definite upturn.

COPPER STOCKPILE QUESTION UNANSWERED — P. 180
Office of Defense Mobilization states that there will be no change in copper policy—which means practically nothing. Labor Dept. opposes the plan to defer stockpile shipments during the current quarter on grounds that it would be considered a strike-breaking activity and the situation is not a national emergency. But the real answer to the question may be awaiting the end of the copper strike.

CEMENTED CARBIDES: WEAR RESISTANCE USES GROW
Original high costs and limitations on sizes and shapes of carbide pieces no longer discourage their use in wear resistance applications. Cemented carbides are now made in pieces weighing 100 lb or more, cost about one-ninth of what they cost 15 years ago. Replacement, maintenance and downtime costs have been cut sharply.

72

HOLES

where they belong

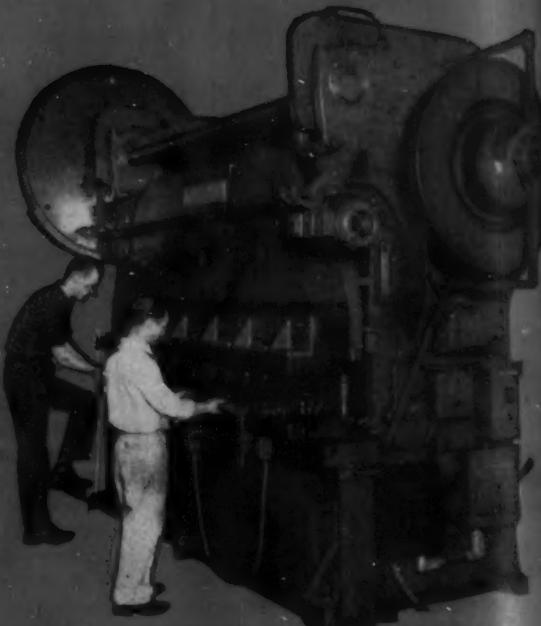
Economical assembly depended on maintaining the accurate spacing of these 72 holes and their accurate positioning on this 10-gauge sheet.

This Cincinnati Press Brake is giving a high production at low cost by its speed and accuracy of performance, which insures rapid low cost assembly.

As a press, they offer high production with low investment. As a Press Brake, their low set-up costs, quick change-overs and versatility bring profits.

Write for Catalog B-4 where many examples of the versatility of Cincinnati Press Brakes are illustrated.

Photos courtesy Kirk & Blum, Cincinnati, Ohio



THE CINCINNATI SHAPER CO.

CINCINNATI 25, OHIO, U.S.A.

SHAPERS • SHEARS • BRAKES



Gloomy Founders See Upturn, Maybe

Construction keeps plumbing, pipe foundries on two shifts . . . Steel mills not buying but higher ingot rate should start them . . . Auto business slow . . . Make 24-hour delivery—Staff Report

ANSWER to the question, "How's foundry business?" depends largely on who makes the reply. Backlogs across the country, for instance, range from more than 60 days reported by one in the South to only a couple of days in the Chicago area. A 3-day work week is not uncommon for some, while others report operating two 48-hour shifts weekly.

Soil pipe founders head the list of those reporting good business. Others doing fairly well are suppliers for other construction, machine tool, oil and chemical processing industries. Independent foundries supplying the auto industry and steel mills are near the bottom of the list.

No matter how bad the reports are, foundries generally indicate they've bounced a bit from the dull lull of mid-summer vacation periods. Business has been bad for a long time now in most foundry quarters and any brightening of the scene is happily grasped at.

Hot competition prevails—characterized, in some cases, as "cut-throat." Price cutting seems most prevalent in the Midwest, being emphasized by reports from Chicago, Detroit and Cleveland.

Busy in Birmingham

Running counter to the gloom of many independent foundries, D. H. Workman, executive vice-president of the Gray Iron Founders' Society, told THE IRON AGE last week that his industry expects to top 2 million tons this year. Last year's total was 13.7 million tons. Low point for the year, Mr. Workman said, was July with 821,000 tons of casting shipped. He pre-

dicts gray iron founders will top 1 million tons monthly in the fourth quarter.

On an area-by-area basis, the South is best off and the Midwest worst. Reports from East and West Coasts are more or less intermediate.

Production and sales are on the upgrade in the Birmingham district and prospects for the rest of the year are considered good. Most of the foundries in this area, some of which were down to as little as 3 days a week production last spring, are now back on a full production schedule.

Busiest are those making cast iron pipe. They are working two 48-hour shifts. "We are being worked to death," said the president of one of the largest cast iron pipe companies. "The pickup in the last quarter was really sur-

prising. We suffered a slump immediately after Korea when prices were high, but signs of improvement were seen last spring. We look for business to continue good for the next month or two but there always is a slump during the months of December, January and February."

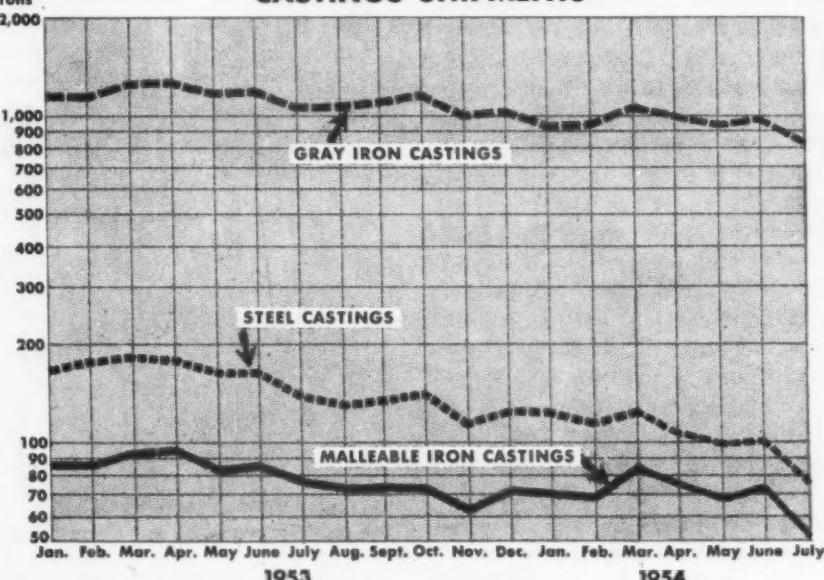
Outlook Is Good

He said that although carbon steel and alloy steel castings are only a small part of the company's operations, sales of these items are good.

Evidence of a healthy foundry situation is a pickup in pig iron sales in the Birmingham area. This is partly due to a shortage of cast scrap in the South and the small price spread.

A steel casting foundry said business dropped off to nothing

CASTINGS SHIPMENTS



last January and showed very little improvement during the spring, but in the last 2 or 3 months has picked up nicely and the outlook for the rest of the year is very good. A manufacturer of Ni-hard alloyed iron castings says business is off a little right now and is down to about the same thing as last year, but it was exceptionally good in June, July and August. And indications are the present slump is only temporary.

"July business in both prices and tonnage was the best we ever had in a single month," said another southern gray iron founder. "It is down a little now from that peak, but for the past 2 months we have run 15 pct ahead of last year and we have a sufficient backlog of orders to keep us operating full time the remainder of the year." (He is the only one to report an order backlog for more than 60 days.)

Deliver in 24 Hours

At the other end of the scale, foundries in the Chicago area report slow sales, curtailed production and shrunken backlogs. It appears that business runs best (relatively) for gray iron foundries, malleable running behind these, and steel foundries in third position in this area.

Reports from gray iron people vary as to actual volume, but most find it improved after the vacation period, currently is at least holding or improving. Delivery is short, making scheduling and inventory control extremely difficult. A few gray iron suppliers may work 3 days one week, 6 the next, and have absolutely no backlog on Monday of either week. Purchasers will call on the last week of the month for delivery within the month, and castings are being produced on as little as 24-hour delivery. Same is true for merchant pig, which is available on 1-day delivery.

Nonetheless, total volume in Chicago can't be too bad. One pig distributor reports September will be the third best month this year.

And October will be better. Tonages of pig sold (exclusive of merchant pig from integrated local mills) will be off in the first half by between 10 and 15 pct. Notable is fact that improved pig shipments are not bolstered yet by any extensive automotive or farm equipment buying, normally two of the biggest gray iron consumers in the area at this time of the year.

Though he isn't speaking for the industry, one producer of malleable castings reports he's had the "worst July in 25 years." His sales force is out looking for new products, and is counting on getting some cast aluminum jobs to justify his 30-day raw material inventory.

Railroad Buying Off

A typical Chicago gray iron jobbing foundry is on a 5-day week but has been pouring only on alternate days since the beginning of the July slump. This spring, while pouring every day, the same foundry worked a 5-day week. Competition is strong with foundries 90 miles away cutting into the company's customer list with the lure of lower prices. This producer expects an October increase, despite the out-of-area competition.

Steel castings—with a lot normally going to the railroads—have been hard hit by the decline in car ordering through 1954. For the first time in months there has been a bright spot in that at least four roads are putting out inquiries on

orders ranging from 500 to as many as 1300 cars, and it is possible that one purchase by a major road would break the log jam, encourage smaller consumers to get into the swim as well.

Estimates of the drop below last year's Chicago iron foundry business in the same period range from 15-30 pct, and for steel castings may run as high as 45 pct in exceptional cases.

Peculiar part of the entire picture is the number of optimists who are beginning to appear. Even though their own business may not have improved since the August recovery from vacation shutdowns, they are nevertheless working 4-5 days and are carrying no dead inventory. Their customers may not be ordering until the afternoon the casting is needed but that means the customer isn't saddled with much more inventory than he needs to get from week to week.

Though at least three large foundries have closed their doors in the Chicago area in the past 6 months, others are beginning to add a few men to the payroll and are accepting the fact that you have to work with backlogs not much beyond 2 or 3 days.

One Chicago merchant pig supplier indicates that the estimated consumption of any of his customers isn't dropped from the monthly total estimate until the last day of the month. In eight cases out of ten he will call on the last day and take his tonnage for 24-hour delivery. This practice hasn't been necessary for at least 16 years.

Die Founders Dip

It is almost impossible to generalize in the Detroit area. Some foundries report good business while others lament a bad year.

One particular group is retrenching for some dismal months ahead. These foundries, peculiar to the Detroit area, make large castings for automotive dies. They have enjoyed a good year because of the large number of dies demanded for the broad model changes that occurred in 1955 models.

But now the tooling for '55's is completed and the first orders for castings for 1956 dies will start coming in within 60 days. Volume



"We're very proud of our clean little foundry."

will be far lower because the model changeover for 1956 can't come within a country mile of the changes for 1955. Only a few whose customers are going to get a better than average share of the tooling are happy about the future.

Job foundries are also depressed and price cutting has resulted. There just isn't enough job business in Detroit to go around and cut-throat practices are hurting.

One area foundry that makes semi-steel castings and also has a large job shop reports that its job business has fallen off as a result of both reduced volume and price cutters. On the other hand, the other side of the business is good. This consists mostly of valves for processing industries and to some extent the oil business.

Another foundry that makes hydraulic valves primarily for machine tools reports that business is picking up after some months of depressed volume. Machine tool builders reduced their inventories to some extent, resulting in the drop. This should level out soon, however.

Foresee Auto Pickup

Another foundry making brass and malleable castings reports both sides of its business are going good with full work weeks and occasional double shifts. This malleable business consists of pipe fittings for plumbing and construction and continued good construction business maintains a good volume.

Inevitably, many foundries are watching the auto industry as their barometer of business. It appears that automotive suppliers of all kinds are slow to get their orders and foundries are no exceptions. However, this can't last and most automotive suppliers are expecting an October and November surge of business.

Cleveland area foundries, heavily dependent on the auto industry are currently engaged in fierce price competition for markets. With decline in auto production, foundry orders were reduced. Now both Ford and Chrysler have started major new captive foundries, removing still more tonnage from independents.

Although one local steel mill re-

cently started up the world's largest merchant iron furnace, designed expressly to supply over 200 foundries in northern Ohio and southern Michigan, another local producer is shipping merchant iron to Chicago from Cleveland and selling it at a Chicago base price.

Cleveland Backlogs Nil

One disgruntled Cleveland gray iron foundryman last week told **THE IRON AGE** local foundries are losing business heavily to out-of-area firms with lower labor costs.

Backlogs are almost non-existent and most foundries in the Cleveland area are operating only 2 or 3 days a week. Rise in asked prices for cupola cast scrap will also hurt but foundries with business at hand may dodge this by buying out inventories of those going out of business.

Picture in Pittsburgh is rather dismal. Foundries have been operating at from 25 to 60 pct of capacity and chances of an improvement over the balance of the year are not considered good. Both steel and iron foundries are pretty much the same. One alloy foundry has been operating 5 days a week but feels business will sluff off in last quarter.

An iron foundry, operating at 50-60 pct, says business has been worse than during the so-called recession of 1949—the '49 dip, he says, was not so prolonged. Staying in business has been a real struggle despite diversified customers including steel mills, machine tool builders, brickyards and others.

Railroad buying is low but the thing that hits Pittsburgh foun-



ders hardest is that steel mills have not been buying. Inquiries received by at least one steel founder, particularly from bridge builders and power shovel producers, indicate a possibly stronger potential over the next several months from these areas. Orders from rubber mills have also held up.

Pittsburgh foundrymen are keeping a sharp eye on the steel ingot rate. If it continues to rise, the mills will probably step up their buying—but, if not, founders see little that's bright at least in the near future.

West Coast foundrymen checked by **THE IRON AGE** see the picture like this—if your business is tied to the building industry, you ought to be in for good steady business the rest of the year; but if you're jobbing, you'll have to take it as it comes in the door.

Building trades are keeping gray iron foundrymen going at a nice clip. Average backlog is about 15 days. Deliveries are made in a week to 10 days. Customer inventories are apparently being kept on a day-to-day basis. Foundrymen have the job of keeping up inventories to supply this type of customer ordering.

Steel foundries in the area are tied heavily to the oil industry. New and expanding oil fields are keeping work going through the shops.

Agricultural replacements are noticeably up in the West. Pumps and implements particularly are getting overhaul attention.

In the New England area, foundrymen report reasonably "normal" activity. At least one reports a "good year" up to now—but if more new orders don't show up it will mean layoffs. Others generally are working a full week.

Eastern Pennsylvania foundries are averaging about 75 pct of capacity with the outlook slightly better. Pipe founders in southern New Jersey, as in the South, are doing really well. So are others dependent on construction activity for their bread and butter.

Pig iron salesmen, out on the road most of the time, indicate that sales are getting somewhat better. They complain, however, of cut-price competition from some iron sources.

PRODUCTION

Dynamite:

Blasts production costs in forming blower hub.

A real bang-up job of cost cutting is done by Moore Co. in producing its line of industrial blowers. They shape Monel fan hubs with a stick of dynamite—and state that it's 85 pct cheaper than spinning.

Two welded Monel cylinders are telescoped and placed in a laminated die. This is partially filled with water and a stick of dynamite is suspended at water level. Next a heavy cover is placed on top, closing the die cavity. Explosive is detonated, expanding the cylinders into a double-walled fan hub which needs no trimming or heat treat. Base metal and welds are reported to stand up well.

Monel is used for hub and other parts to resist corrosive industrial gases the blowers are designed to handle.

Another unusual feature of the Moore blowers is the motor design in which the rotor is outside the stator. This design, according to the company, delivers up to nine times the horsepower of conventional fan motors.



DYNAMITE tosses lid and water skyward, expands blank to die shape.



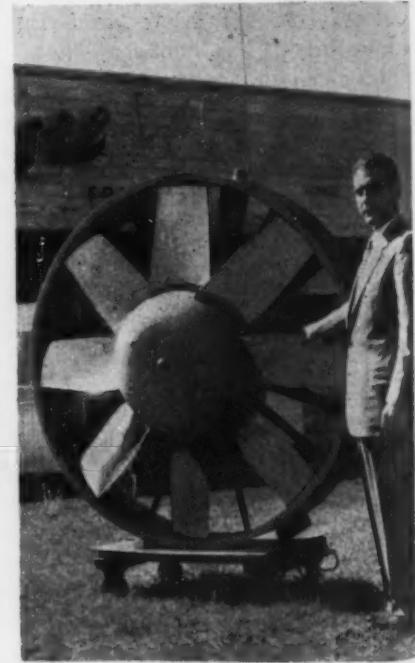
WELDED sheet Monel cylinder as it appears before being blast-formed.



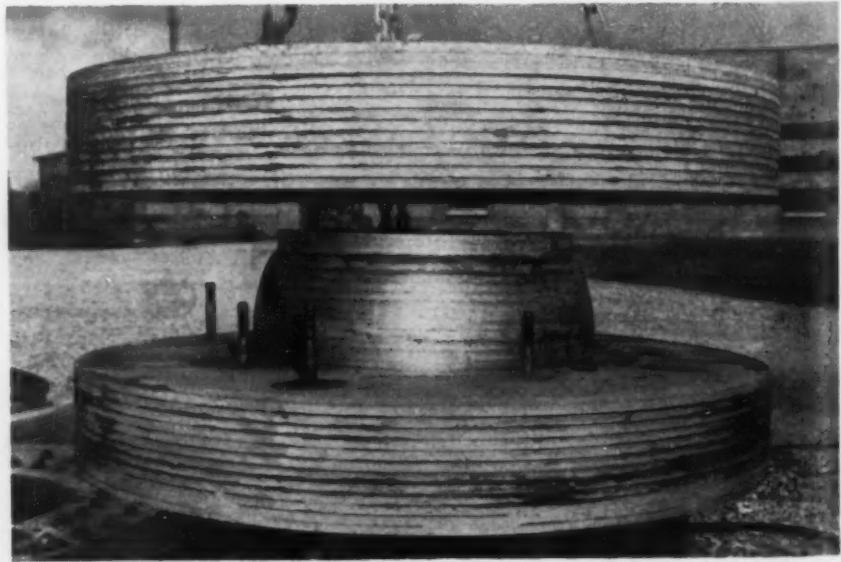
JUST OUT of the die, hub needs no trimming and no annealing.



INSERTING telescoped blanks in heavy laminated steel plate die.



FINISHED pressure blower shown with company president R. D. Moore.



UPPER HALF of die is lifted off after blast-forming. Hub has uniform wall thickness. Method is claimed to be 85 pct cheaper than spinning.

STEEL: Allegheny Takes on New Look

Nine-year, \$96 million expansion program at Allegheny Ludlum ends with installation of 56-in. cold mill . . . Aim of program was to convert company's production from cut lengths to coils—By J. B. Delaney.

♦ ALLEGHENY Ludlum Steel Corp. has achieved that "New Look."

The company spent \$96 million in 9 years to expand and modernize its production facilities. It also did a bang-up job in the field of human and public relations while building up its production facilities.

E. J. Hanley, president, talks with considerable pride about the company's productive efficiency now that its post-war expansion and modernization program has been completed. But his vest buttons pop when he tells about A-L's industrial and public relations, safety, quality control, training, and improved relationships between supervisors and the company's top brass.

Bring In Cold Mill

The company last week brought into production the last major piece of equipment in its improvement program—a massive, powerful 56-in. cold mill with an annual capacity of 300,000 tons of stainless, silicon, and alloy steels. The mill is located at Brackenridge, Pa.

Other new facilities include a 56-in. single stand reversing cold mill installed in 1951; 40-in. blooming mill and soaking pits; 56-in. semi-continuous hot strip mill; 56-in. skin pass mill; 56-in. continuous pickle and anneal lines, and 5 new electric furnaces—all at Brackenridge. Similar improvements were made at other plants including hot extrusion facilities at Watervliet. A new research center also was constructed as part of the expansion program.

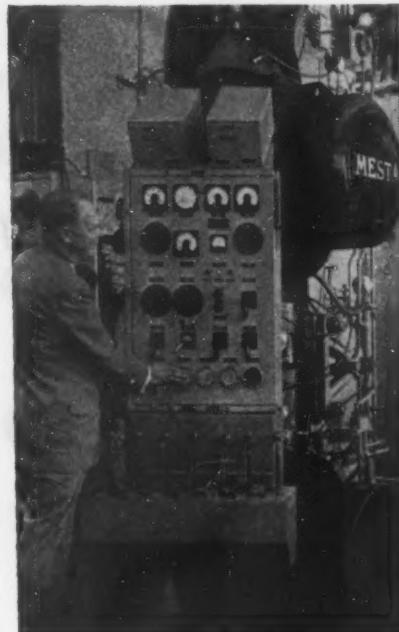
A primary aim of the program was to convert company production from cut lengths to coils in

keeping with a trend in consumer requirements. Its completion has placed the company in the best competitive position in its history.

Improve Labor Relations

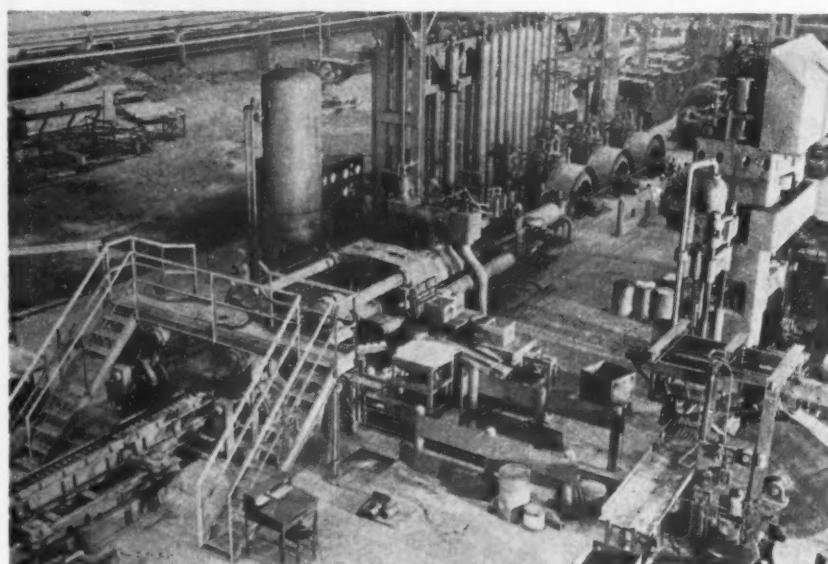
But Mr. Hanley and other company officials emphasized that they have not neglected the so-called "intangibles" of running a steel company. They point to better labor relations, quarterly management sessions where supervisors at all levels get a chance to talk things out with the boss on any subject they want to bring up; better community relations; a training program that paid big dividends in starting up the new tandem cold mill.

Interest in accident-prevention in A-L mills has reached the point where even the slightest mishap receives close scrutiny by management. The Brackenridge plant recently operated nearly 3 million manhours without a lost-time accident.



A-L PRESIDENT Hanley starts new 56-in. tandem cold mill at Brackenridge plant.

dent. Other plants have exceeded 2 million manhours without a lost-time mishap.



HOT EXTRUSION plant at Watervliet plant produces seamless tubing and wide variety of shapes in stainless and other high alloy materials.

UNITED STEEL DRUMS

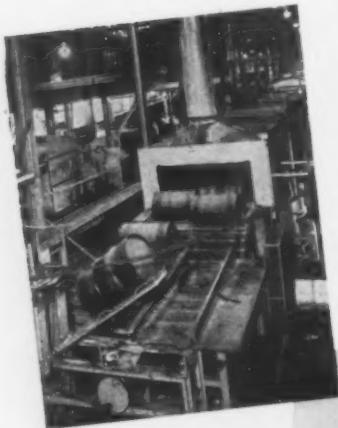
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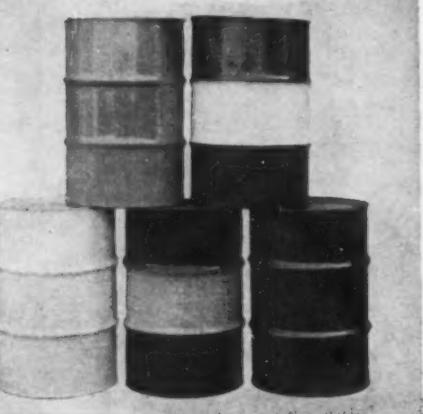
FOR EXTRA PROTECTION

Steel Drums made by United Steel Barrel Company of Philadelphia, Pennsylvania, are chemically cleaned and phosphate coated in an integrated spray Granodizing process:



UNITED DRUMS fabricated from Standard Gauge Steel are available in all sizes, with special linings for a variety of products, and decorated with any desired design.

- 1 **ALKALI CLEANING** removes oil, grease, fingerprints, hand-marks, other surface soil;
- 2 **SULFURIC ACID PICKLING** then removes mill scale;
- 3 **GRANODIZING** converts the chemically cleaned steel surface to a uniform phosphate coating. The "Granodine" coating being non-metallic is an ideal bond into which the paint finish is "keyed" or anchored;
- 4 **"DEOXYLYTE" final acidulated rinsing** conditions the Granodized steel surface for optimum paint life.



- **EXTRA PROTECTION** for the finish—a lasting bond between paint and steel.
- **EXTRA PROTECTION** for the steel container—an inert barrier against rust creepage.
- **EXTRA PROTECTION** for the contents—chemically clean interior surfaces.
- **EXTRA PROTECTION** for the customer—an assurance of cleanliness, durability, and fine appearance.

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RESEARCH

Atoms:

Armour starts first reactor for industrial research

Atomic energy came back home to the Midwest recently as Armour Institute at Chicago announced its beginning of the first atomic pile to be devoted exclusively to industrial research. The nuclear reactor, subject to an AEC okay, will be completed and in early operation within 12 months, followed by a 6-month shakedown period before actual industrially sponsored experimentation begins.

Housed in a 8000-sq-ft building and buttressed in a \$500,000 setting, the reactor will be located three floors below street level on Chicago's South Side, will generate 50,000 watts of power, is the first reactor of this size to be located in such a densely populated area.

Nervous inquiries as to whether the unit might blow up, taking the campus and a number of new Chicago Housing Authority projects with it, brought stout "no's" from Dr. Richard F. Humphrey, manager of Armour's physics research department and head of project.

Reactors don't blow up, he explained, but can produce radioactive gases, for which safety devices in ample number will be provided.

Ask Industry Aid

A group of Chicago area industries will be invited to make \$20,000 contributions, which will give them access to the reactor for a 3-year period and first call on its facilities. Armour plans to assume one-third of the total investment.

For several weeks past, Armour had been quietly checking Chicago producers of chemicals, foods, drugs, heavy metals, plastics, electronic equipment, power and petroleum. Though no grants have been hinted at, initial response was surprisingly strong.

Suggested metalworking applications the Foundation will probably be called upon to study: die wear, diffusion of alloys in base metals, diffusion of additives in base metals, occlusions in base metals, and other research that will be non-classified.

STEEL: Abandon Delivered Pricing

Republic Steel's "noble experiment" in delivered base prices fail . . . Firm returns to f.o.b. mill system . . . Still back merits but other mills didn't follow . . . Big customers approved—By T. M. Rohan.

♦ REPUBLIC Steel Co.'s "noble experiment" on quoting delivered base prices has come to an end. The company returned to an f.o.b. mill system effective Oct. 4.

Company officials, still firmly believing the system was mutually beneficial, said it became a source of irritation to a minor percentage of customers, was hence unsuited to today's highly competitive market. Plan started with carbon bars in December 1953 and was later extended to other products.

Under the system, Republic picked out the most logical freight to each of the 1481 counties it regularly serves. By means of a symbol system salesmen could easily quote a delivered price to customers in their office without figuring out freight. Customers thus had instant prices from several mills and avoided bookkeeping on transportation, prosecution on freight damage claims and routing. Republic was able to quote instantly, eliminate calculation through a maze of freight rate structures and reduce clerical work proportionately.

Big Users Approved

As it worked out, Republic was rarely on the nose with competition but always a few cents lower or higher by the margin of small differences in freight within a county. In no known instances was it more than 25¢ per ton off or about \$6.25 per month for a 25 ton per month customer. If high, taking the customer to lunch more than made up the difference and where low, the customer was ahead.

Larger customers, including auto plants, were more than happy to pass on the work of the freight scheduling, traffic, billing chores

and other details to Republic. But smaller customers, used to handling all steel suppliers on the same basis, were reluctant to set up special handling and accounting procedures for Republic's steel and integrate them with existing invoicing and other systems.

It was indicated that sales from the hotly competitive Chicago area producing points are what brought matters to a head. Some customers in western Illinois, for example, found 25¢ differentials at opposite ends of the county

from competing Chicago area mills.

Summing it up last week, Republic officials felt that had other producers followed the system as originally hoped, a vast amount of internal paperwork would have been eliminated on both ends and customers would still get delivery for almost identical prices. They also felt the system is ideally suited for producers serving a more localized area in which they could break up counties into segments and avoid differentials.

One steel buyer last week told **THE IRON AGE** that he was happy to hear the system had been abandoned because it didn't fit in with his firm's established procedure.

"Although the whole system was explained to us thoroughly when it was introduced, it still remained something of a Chinese puzzle to try and figure out how it had been arrived at and we'd just as soon continue our old way," he said.

Might Have Worked

Another steel buyer conceded the system eliminated work at his end but still remained different from other systems and therefore something of an oddity. He said if all mills had adopted the procedure it probably would have worked out.

One side effect of the abandonment of the delivered price system was a lowering of **THE IRON AGE** Finished Steel Composite Price. This dipped from 4.801¢ per lb to 4.798¢ per lb. However, since actual delivered prices of Republic will remain much the same, the slight decline in the Composite Price should not be considered a sign of weakness in steel base prices.

TAXES: How To Save Your Heirs Money

Estate planning can save substantial sums on inheritance taxes . . .

Don't underrate size of your taxable estate . . . Compare outright versus trust will tax rates . . . Part III of a series—By J. J. Buckley.

♦ MOST BUSINESSMEN are forcibly reminded of the importance of income and property taxes almost daily. But death taxes are remote and the average businessman neither understands them nor does much about them. It's not that he doesn't care about the welfare of his family after his death. Rather, he's just too busy with today's problems. He'll take up future problems some day when he has the time—the day that never comes.

How They Work

Yet tax savings through proper estate planning can run into five figures even in moderate-size estates. The last article of this series considered the case of Ted Smith, who had a wife and two children and an estate of \$600,000. In this article death taxes will be compared—(1) if Ted died intestate, (2) if he died with a will leaving his entire estate outright to his wife, (3) if he died leaving his wife the income from his estate for her life but no power over the principal, and (4) if he died with the well-planned will which he finally decided upon. But first a word about how death taxes work.

State inheritance taxes vary in each of the 48 states, but they

usually are quite modest when the estate goes to a wife or children. They are negligible when compared with federal death taxes in estates of any substantial size. Federal law allows an exemption of \$60,000. If the value of an estate after expenses and deductions does not exceed that amount there is nothing to worry about. But rates go up rather alarmingly for estates over \$60,000. At \$120,000 your estate is already in the 28 pct bracket. Table I shows examples of federal taxes for estates of various sizes.

An important fact about federal estate taxes is that the government considers as part of your taxable estate many assets (such as life insurance, jointly-held property) which are not owned individually. An extreme case is Frank Simpson, who felt his assets from the standpoint of death taxes were only his clothing and personal effects — worth \$100. Actually his estate for federal death tax purposes was:

Clothing, etc.	\$ 100
Insurance payable outright to his wife	100,000
Real estate and se- curities which Frank purchased	

with his money but registered in the joint names of himself and his wife	150,000
Savings account which he opened in his own name "in trust for" his daughter	10,000
Outright gift to his son made within 3 years of his death and found to be "in contemplation of death"	20,000
Principal of a trust established by the will of Frank's father which Frank had an un- restricted right to dispose of by his own will	100,000

Total "Estate" sub- ject to federal death tax	\$380,100
----------------------------------------------------------	-----------

The case of Frank Simpson reminds one that it is dangerous to rely on guesswork or hearsay as to what will be subject to taxes at death. Had Frank obtained the advice of a qualified expert, he could have reduced taxes at his death and again at his wife's sub-

Table I—Federal Inheritance Taxes by Size of Estate

(1)	(2)	(3)	(1)	(2)	(3)
Net Estate before exemptions	Rate of Tax on excess over amount in Column 1	Gross Federal Tax on amount in Column 1	Net Estate before exemptions	Rate of Tax on excess over amount in Column 1	Rate of Tax on excess over amount in Column 1
\$ 60,000	3 pct	\$ 4,800	\$ 300,000	30 pct	\$ 62,700
100,000	22	9,500	350,000	32	78,500
120,000	28	17,900	500,000	32	126,500
150,000	28	32,700	750,000	35	212,200
200,000	30	47,700	1,000,000	37	303,500
250,000	30				

Table II—Outright Will Vs. Trust Will Taxes

OUTRIGHT WILLS

Gross Estate	First Tax	Tax on Death of Wife	Total Taxes
\$ 100,000	None	\$ 4,800	\$ 4,800
120,000	None	9,500	9,500
150,000	\$ 1,050	17,606	18,656
200,000	4,800	31,260	36,060
250,000	10,900	44,430	55,330
500,000	47,700	111,236	158,936
1,000,000	126,500	256,685	383,195

sequent death, thereby saving a considerable amount of money for his children.

There are two principal ways to leave property so that federal death taxes are kept to a minimum. First, by taking full advantage of the marital deduction, and second, by avoiding the second tax when the wife dies.

A married man can leave approximately half of his taxable estate to his wife tax-free. But this half must pass to the wife either outright or so that she has disposition of the principal during her life or by will at death.

Any such property passing tax-free to a wife will be taxed at her death at its going value.

The maximum marital deduction can be no more than one-half an estate. Any of the remainder passing outright to a wife will be taxed in the husband's estate and again at his wife's subsequent death at a much higher rate. (Some relief is granted for property previously taxed if the wife dies soon after the husband, but the credit decreases as years pass by and reaches the vanishing point if she survives by 10 years.)

The second tax at the wife's death on the half which cannot qualify for the marital deduction can be avoided. This can be done by providing that this one-half be placed in trust for the wife so that she will receive the income during her life, but at her death the principal will pass tax-free for the children's benefit without being subject to her control.

Similarly, a third tax on the same property can be avoided when the children die by continuing the trust until their deaths so that the estate will pass tax-free to the

TRUST WILLS

First Tax	Tax on Death of Wife	Total Taxes
None	None	None
None	None	None
\$ 1,050	\$ 1,050	\$ 2,100
4,800	4,800	9,600
10,900	10,900	21,800
47,700	47,700	95,400
126,500	126,500	253,000

grandchildren. Whether this last step is worthwhile usually depends on the size of the estate and the number of children.

With these two principles in mind, take a look at comparative figures for the estate of Ted Smith. In each case it will be assumed that his wife survives him by 10 years and neither spends any of Ted's principal nor accumulates any estate of her own.

First, assume he died without a will. Principal tax disadvantage to this is that only one-third of the estate passes to the wife. Hence his estate is not entitled to the full marital deduction.

Tax on Ted's death on \$400,000 (\$600,000 less marital deduction of \$200,000)	\$ 94,500
Tax on wife's \$200,000 when she dies.	32,700
Total taxes	\$127,200

But what if Ted followed his

first inclination, made a will leaving everything outright to his wife? This would obtain the full benefit of the marital deduction in his estate all right, but tax wise he would be giving her too much and subjecting his entire estate to a second tax on the same property when she dies.

Tax on Ted's death on \$300,000 (\$600,000 less the maximum allowable marital deduction of \$300,000)	\$ 62,700
Tax on wife's subsequent death on \$537,300 (\$600,000 depleted by Ted's tax)	138,436
Total taxes	\$201,136

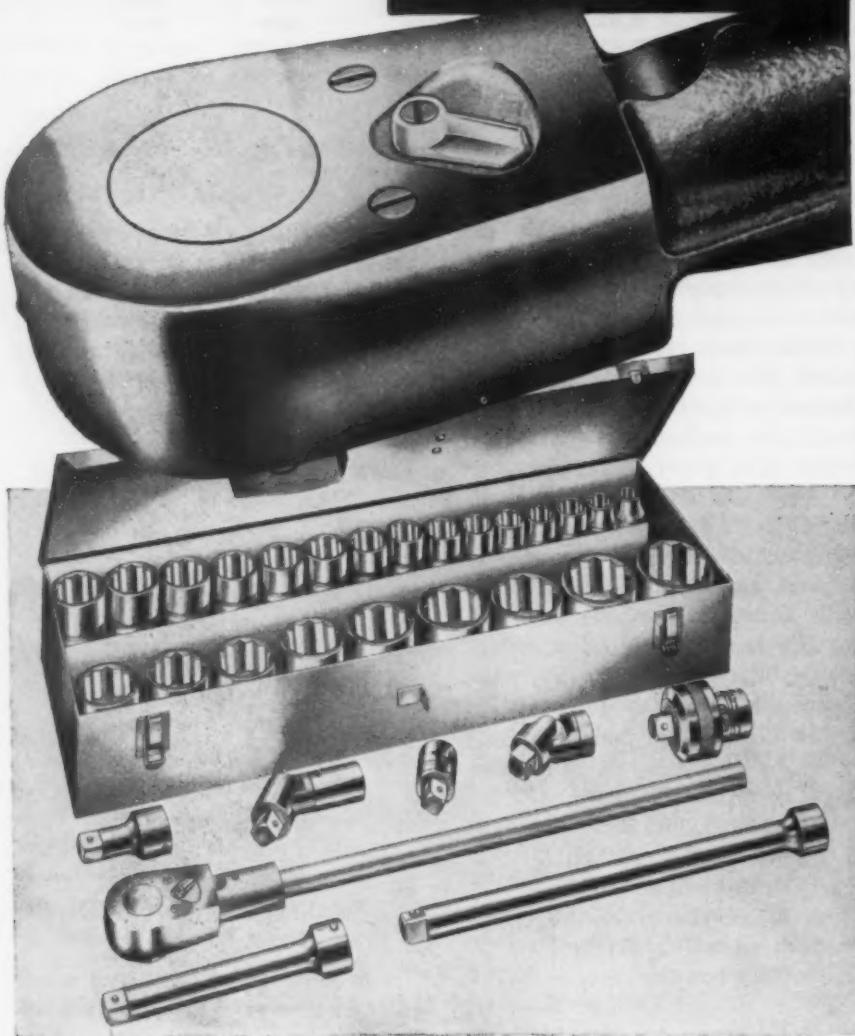
For contrast, suppose Ted went to the other extreme and avoided the second tax altogether but took no advantage of the marital deduction—he left his estate in trust for his wife but gave her no power to dispose of any part of the principal.

Tax on Ted's death on full \$600,000 ..	\$159,700
Tax on wife's death.	none
Total taxes	\$159,700

The plan Ted actually adopted worked out this way: He took advantage of the maximum allowable marital deduction by giving his wife the income and an unrestricted right by her will to dispose of one-half the principal, but gave her no power over the other

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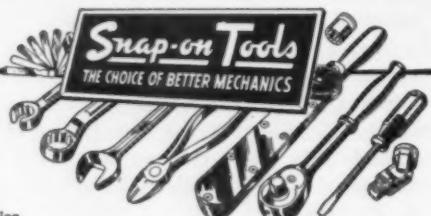
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MANAGEMENT

half so it passes tax-free to the children at her death.

Tax on Ted's death on \$300,000 (the half not qualifying for the marital deduction)	\$ 62,700
Tax on wife's death on the \$300,000 she has no power to appoint	62,700
Total taxes	\$125,400

Table II shows similar comparative figures in estates of varying size. In each case the comparison is between a will leaving everything to the wife outright and a will leaving half the estate in trust to pass tax-free to the children at her death.

Note that the figures given in the text and table concern only the taxes through the death of the widow. If, as in Ted Smith's case, the trust is continued until the children die, further substantial savings can be accomplished for the grandchildren. Where the estate is large enough and there are not many children, this should be seriously considered.

Frequently the child himself would far prefer to have all or part of his inheritance from his father held in trust so that it will be excluded from his taxable estate. But if the father dies and fails to do so it is too late, because any trust the child creates for his own benefit will be taxed on his death as if he continued to own it.

Remember Income Tax

Beneficiaries' income taxes are also important. If the estate is large and all the income is given to the widow, it could turn out that she will be paying tax on income she cannot use at a much higher rate than would be paid by the children if they had received part of the income directly. Good planning would avoid this situation in such a case by giving all or part of the income from the non-marital deduction half of the estate to the children immediately on the father's death.

FOUNDRY: Streamline Handling Methods

Foundries striving to find improved materials handling methods . . . One company achieved considerable time and cost savings by installing a gas-driven tote truck and inching conveyors—By K. W. Bennett.

♦ IT'S BEEN SAID that for every ton of finished product, the average foundry handles 120 tons of unfinished goods. Meeting at Chicago last week, the Society of Industrial Packaging & Materials Handling Engineers were finding out why a single ton of goods needs to be handled that often in the manufacturing process, what some of the handlers are doing about it.

Speaking for the Central Foundries Div. of General Motors, John Houlihan had a test case that provided an impressive number of answers. In one of the division's gray iron foundries a system has been developed that is simple and successful enough to guarantee its inauguration in a second, malleable iron operation.

Weigh While Loading

From crane-filled bins of scrap, pig iron, ferroalloys, and coke, and a cupola charged by a hand-operated dump buggy hauled by three men, the foundry this spring switched to a single, gas-driven tote truck that economically charges all of the melt components from inching conveyors carrying the raw materials.

Scrap is delivered by inching conveyors, as are coke and the malleable pig. The scrap is gravity fed into the tote pan of the truck, and the entire truck is weighed as it loads, eliminating a separate weighing operation and a trip to a distant scale. Vibrating coke screens sift the coke charge and clean it before dropping the material into the tote pan, and sprays keep all of the belts dust free. Though not yet in operation, a scale will be placed under the coke screen to deliver a pre-weighed charge to the tote pan.

Over the inching conveyors, within easy reach of the operator as he sits in his tote truck seat, an overhead chart permits him to register each truck load as he weighs it. Eliminated are: hand cleaning of the old tote pan after dumping, a trip to the scale for weighing of each of the different loads, the three-man team necessary to move the old hand truck when it was loaded with pig, the necessity of carrying individual

pigs by hand back to the storage bins from the scale when a charge was overweight, the safety hazards present when three men are handling heavy raw materials by hand.

The materials handling equipment, in this case inching conveyors and one tote truck, cut time and handling costs. Study of moving pictures of the old and new processes is providing more ideas.

Old timers will often comment



NEW OFFICERS of Assn. of Iron & Steel Engineers are (top, l to r): W. H. Collison, Great Lakes Steel Corp., first vice-president; J. H. Vohr, U. S. Steel, president; (bottom, l to r): L. Larson, Republic Steel Corp., treasurer; J. D. O'Roark, Weirton Steel Co., second vice-president.

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that a jobbing foundry is a particularly tough problem in materials handling engineering. It can be done, however. A detailed study from an Ohio foundry installing a mobile crane was concrete, and suggested that the foundry is a meatier potential market than some foundrymen will admit.

The crane, working in a crowded yard, racked up a big league box score: in manhours savings per car unloading scrap, 36 manhours; in moving scrap from stockpile to charging box, per day, 13 manhours; in unloading sand from railroad car to stockpile, 28 manhours per car; loading sand from stockpile to trucks or hopper, 21 manhours per 60 tons.

As a bonus the firm saved \$300 on railroad demurrage by fast run unloading; increased its scrap at storage area by 10 times.

Add Working Space

For the plant hampered by lack of space: Armour, the giant Chicago meatpacking firm, reduced warehousing space for empty tin cans from five floors to two, in other warehousing areas reduced storage space from three buildings to one, chiefly in the process of making a materials handling survey that was designed to reduce handling costs.

Thompson Products, at Cleveland, in the course of a materials handling survey in its warehousing area, cleared 155,000 sq ft of storage space.

Keystone Steel & Wire, Peoria, expanded working space in its barbed wire plant by 50 pct, and reduced handling costs at the same time. Sangamo Electric, saddled with a rising cost problem in its warehousing of incoming sheet steel, put in overhead tramrail carriers with a carrying pan and cut handling manhours by 37 pct.

Material handling engineers are frank to say they are still scratching the surface. Studies on materials handling savings in time and cost are still in their infancy. But younger still is the study of the potential gains in space saving, safety, and plain good plant housekeeping.

MERGER: KO Bethlehem-Youngstown Plan

**Justice Dept. disapproves proposed Bethlehem-Youngstown merger . . .
Brownell says competition between the two companies is substantial . . .
But indications are companies have not yet given up hope on merger.**

♦ GOVERNMENT disapproval of the Bethlehem-Youngstown plan to combine gives the two firms a disappointing setback, but it leaves the merger door cracked a trifle for any future effort by these or other steel companies.

Space left for merger moves in the steel industry may be narrow, but the fact that it exists is indicated clearly in this comment by U. S. Justice Dept. as it rejected the Bethlehem-Youngstown proposal:

Disapproval applied only to the single plan offered and to current economic conditions in the steel industry.

There is no ban on the presentation of a new merger proposal at some future date.

Sees "Substantial" Competition

According to Attorney General Brownell, the proposal which was turned down would have violated the antitrust laws. He observed recently that a merger does not have to produce a monopoly in order to be illegal.

It is apparent that the question of continued competition was a strong factor in the official decision on the Bethlehem-Youngstown plan. Competition between the two companies, as Mr. Brownell sees it, is "substantial."

But President J. L. Mauthe of Youngstown says the merger actually would have boosted competition in the industry. And Bethlehem head Eugene G. Grace issued a similar statement following the Brownell announcement. Mr. Grace said that officials at Bethlehem and Youngstown are convinced the proposed merger would stimulate rather than restrict competition in the steel industry. He stated:

"Youngstown's steel plants are

located in the Midwest, where Bethlehem has no steel plants. Due to high transportation costs, steel mills which are located in different parts of the country do not compete except in overlapping fringe areas.

"Although Bethlehem and Youngstown are important companies, the geographical location of their plants is such that competition between them is not substantial anywhere, and wherever there is any at all, the competition of other large steel companies is preponderant.

"The merger would bring a great new competitive force into the Midwest market, where the plants of Youngstown are overshadowed by those of other large steel companies . . ."

Haven't Given Up

There are strong indications that neither company has given up hope on the planned merger. Mr. Grace said that Bethlehem was exploring what further action might be taken to make the merger possible, while Mr. Mauthe said Youngstown was "reviewing the question of whether we will

proceed to seek a determination of the matter by the courts."

Considered by Justice Dept. in making this decision, said Mr. Brownell, was the Clayton Act policy related to the halting of trends toward concentration in an industry. He accompanied this revelation with the comment that Bethlehem has aggregate assets of more than \$1.7 billion, while those of Youngstown total over \$513 million.

If the merger were attempted now along the lines disapproved by Justice Dept., legal authority exists to seek a court injunction to stop the action, Mr. Brownell noted.

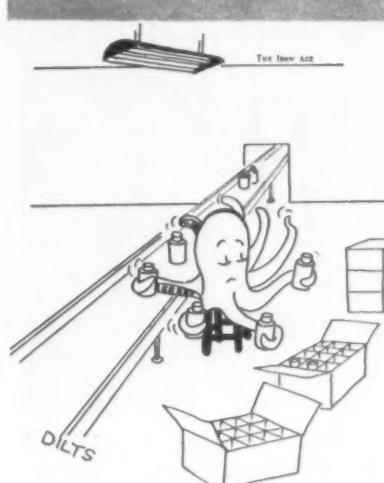
Seeking to soften the impact of his announcement, Mr. Brownell indicated there was possibility that sweeping changes might be made in the antitrust laws in the next session of Congress. If put through these would put into effect a "middle-of-the-road economic and social administration" of corporate combinations.

In the face of recent approvals of mergers in the auto industry the Brownell announcement has left many companies currently considering mergers completely up in the air on whether their plans will be approved.

Ease Tax Writeoffs

Office of Defense Mobilization is increasing the percentage of capital investment eligible for fast tax writeoffs for firms locating defense plants in labor surplus areas.

Under the plan, firms eligible for tax amortization certificates for new or expanded defense facilities will get a higher than normal portion of the total cost certified by locating in labor surplus areas. Estimates are that it will run from 65 to 80 pct.



CONTRACTS: Deny Favoritism

Wilson answers favoritism charges . . . Says policy has not changed under him . . . Contract talks started under old Administration . . . New Chrysler contract backs him.

♦ MILITARY contract distribution is balanced and equitable, the Defense Dept. says, despite complaints of favoritism.

Defense Secretary Wilson states that no major change has been made in buying policies since he took over. He insists that procurement programs are not designed to give an unfair advantage to any one company.

Though he does not specifically say so, Mr. Wilson makes obvious reference to the recent charge by Sen. Henry M. Jackson (D., Wash.) that independent automotive firms are being crippled by concentrated placement of military orders with General Motors.

"Startling Reversal"

According to Sen. Jackson, in the 18-month period ended last July net new defense contracts signed by GM rose by \$1.7 billion, while those made with other auto manufacturers dropped by \$395 million. He called this a "start-

ling reversal" of the situation which existed between July 1950 and January 1953.

Mr. Jackson alleged that under Mr. Wilson there is a "settled procurement policy" which ignores these considerations:

(1) Principle of broad dispersion of defense production.

(2) Economic results, such as unemployment, of "pulling contracts away from" independent auto manufacturers.

(3) "Near-elimination" of competition in the auto industry.

A major element of Secretary Wilson's rebuttal deals with the matter of contract placements with GM during the 18-month period cited. Without naming the firm he formerly headed, Mr. Wilson points out that "most" of the contracts referred to were "negotiated or placed on letters of intent" under the Truman Administration.

During the period, he says, actual commitments made under

the previous administration were put in formal shape—accounting for the figures named by Mr. Jackson. In the last 12 months particularly, Mr. Wilson adds, the military program has been "brought into balance."

Chrysler Gets Contract

Hard on the heels of these expressions of divergent views comes the disclosure that Army Ordnance Corps has placed two important contracts with Chrysler Corp. for production of M-48 medium tanks and the Redstone, a new experimental guided missile.

With a contract calling for \$160 million worth of tanks, Chrysler has until June 1955 to get ready to produce. The tanks will be built at the firm's Newark, Del., tank plant. Continental Engine Co., of Muskegon, Mich., will provide the engines.

Competing against Chrysler for the award were American Locomotive Co. and Fisher Body Div. of GM. Fisher now is building the M-48 and will continue until at least June 1.

Latest increment of the amount to be spent on Redstone, a long-range missile, is \$855,000. Chrysler previously was given more than \$22 million in contracts for development and production of the weapon.

Open Extrusion Plant

Heintz Manufacturing Co. last week played host to a number of top military and civilian personnel at the formal opening of its new \$7 million cold-extrusion plant in Philadelphia.

The firm, a pioneer in cold-extrusion of steel in the U. S., is producing rocket heads from bar stock in as few as five press operations. Extremely high physical properties result from the severe cold-working, permitting use of plain carbon steel without heat treating. Scrap loss is very low when compared with other fabrication techniques. For a detailed discussion of the new plant, see p. 126.

Assistant Defense Secretary Donald A. Quarles and officers of Army, Navy and Air Force were quite favorably impressed by the new facility.



FIRST ATOMIC submarine, the *Nautilus*, built by Electric Boat Div., General Dynamics Corp., was commissioned last week at Groton, Conn.

PLANNING

Report To Management

You can figure there was less work done than usual last week. Also beer consumption in bars was upped considerably and company betting pools caused a sharp increase in the amount of money changing hands. The economy was going through its annual World Series staggers.

This has become such an important economic factor the Federal Reserve Board might do well to take it into consideration in making its seasonal statistical adjustments.

United Steelworkers chief David McDonald is bringing a new look to labor leadership with his philosophy that labor has an equal responsibility with management for the economic well-being of the industry, its employees and its stockholders (THE IRON AGE, Sept. 30, 1954, p. 49).

Some of Mr. McDonald's critics will be ready to lower the boom if his gentlemanly union stewardship doesn't bring union members fatter paychecks, increased fringe benefits. But you can count on Mr. McDonald's winning out.

So long as he remains a "right wing" labor leader, steel companies will do everything they can to make him look good.

Right now, Walter Reuther, CIO and United Autoworkers boss, is stuck with the guaranteed annual wage ball. He has to make a strong push for GAW at the auto industry's contract confabs next year, and it will take a real fight to get it. But if he succeeds, you can figure the steel companies will give Mr. McDonald's union the same (or better) benefits as the autoworkers receive.

As union leaders go, steel management regards Mr. McDonald as the kind they want to do business with and they aim to keep him that way. Result is Mr. McDonald's velvet-glove approach is proving highly effective.

Watch for a drive by TV manufacturers to have the excise tax on color TV sets eliminated. Pitch will be: excise taxes on color TV

receivers should be scrapped for at least a few years in line with the policy of waiving the tax for limited periods on new industries and products.

The industry will also include a rider proposal to have the 10 pct excise tax on black and white TV receivers and radios reduced to 5 pct, as was done with some other appliances.

There's little hope for a pickup in freight car loadings for the rest of the year. Fourth quarter will show revenue freight car loadings running about 8.6 pct below the final quarter 1953 rate. Only area in which car loadings are likely to be above fourth quarter '53 is the Pacific Northwest.

But railmen do expect increased shipments of certain commodities. Included in this group are frozen foods, automobiles, trucks, and livestock. Showing substantial losses from fourth quarter last year will be carloadings of iron and steel, ore, hay, straw and alfalfa.

One of the real sleepers of the postwar boom has been the portable electric heater industry. In prewar years heater sales maintained a pretty even pace but never topped the \$2.5 million mark. Since the war sales have never been under \$9 million and last year hit a \$36 million high.

Shipments so far this year are running about 30 pct below the '53 pace so sales volume will undoubtedly be considerably under last year's level. Nevertheless overall growth of this industry is still spectacular.

Reasons for the sudden surge are technological improvements such as thermostat controls, new safety features. But another important factor has been the do-it-yourself trend. With more people spending their time in attic and basement workshops, a new market for portable electric heaters has sprung up.

INDUSTRIAL BRIEFS

New England Rep. . . . O. C. Stevens Machinery Co., Inc., 76 LaSalle Road, West Hartford, Conn., has been appointed exclusive representative in New England for Kingsbury Machine Tool Corp., Keene, N. H.

Will Specialize . . . Sahlin Engineering Co. opened a new plant in Birmingham, Mich., to house automatic research and experimental activities.

Contract Let . . . Townsend Co., New Brighton, Pa., has awarded general contract for constructing first segment of its new plant at Ellwood City, Pa., to Mellon-Stuart Co., Pittsburgh.

Complete Line . . . Kaiser Aluminum & Chemical Corp. appointed Steel & Aluminum Products Corp., Detroit, a distributor of its line of aluminum sheet, plate, rod, bar and wire.

Elected . . . Alden G. Roach, president, Columbia-Geneva Steel & Consolidated Steel Divisions, U. S. Steel Corp., was elected a member of the board of trustees of the California Institute of Technology.

Opens Branches . . . Gar Wood Industries opened two new direct factory truck equipment sales branches in Tulsa, Okla., and Springfield, Ill.

Hear Ye . . . Chromalloy Corp., New York, appointed William K. Duff & Co., Darien, Conn., as its New England field representative.

Receives Contract . . . Dravo Corp. has received a contract to furnish Dravo-Lurgi iron ore pelletizing equipment for the Copper Cliff, Ont., plant of the International Nickel Co. of Canada.

Coming Up . . . General Electric Co. will officially open its new welding plant in York, Pa., on Thursday, Oct. 21. The plant is headquarters of GE welding products and contains manufacturing facilities that make it one of the most modern organizations of its kind in industry.

Plant Extension . . . Milton Steel Products Div., Merritt & Scott Corp., started construction of a new plant extension with approximately 19,000 sq ft of floor space to house additional fabricating and warehousing facilities at its Milton, Pa., plant.

Will Build . . . Minnesota Mining & Manufacturing Co., St. Paul, will build a \$350,000 plant at Guin, Ala., with approximately 75,000 sq ft of floor space. It will be a unit of the Reflective Products Div.

Service Shop . . . Allis-Chalmers Mfg. Co., Milwaukee, named the Trester Service Electric Co., Inc., Milwaukee, as a certified service shop for its motors and control equipment in the southeastern portion of Wisconsin.

Purchased . . . Minneapolis-Honeywell Regulator Co. purchased the assets of Heiland Research Corp., Denver, which now will be operated as a new Honeywell division.

REDUCE CYLINDER HANDLING

Up to 50% with INDEPENDENT Gas Supply Trailers!

Here's the newest idea in gas service! Leave a full gas trailer with your customer . . . replace it with another when empty. Reduces cylinder handling up to 50% . . . cuts cylinder costs . . . gives customers the convenience of having uninterrupted gas supply.

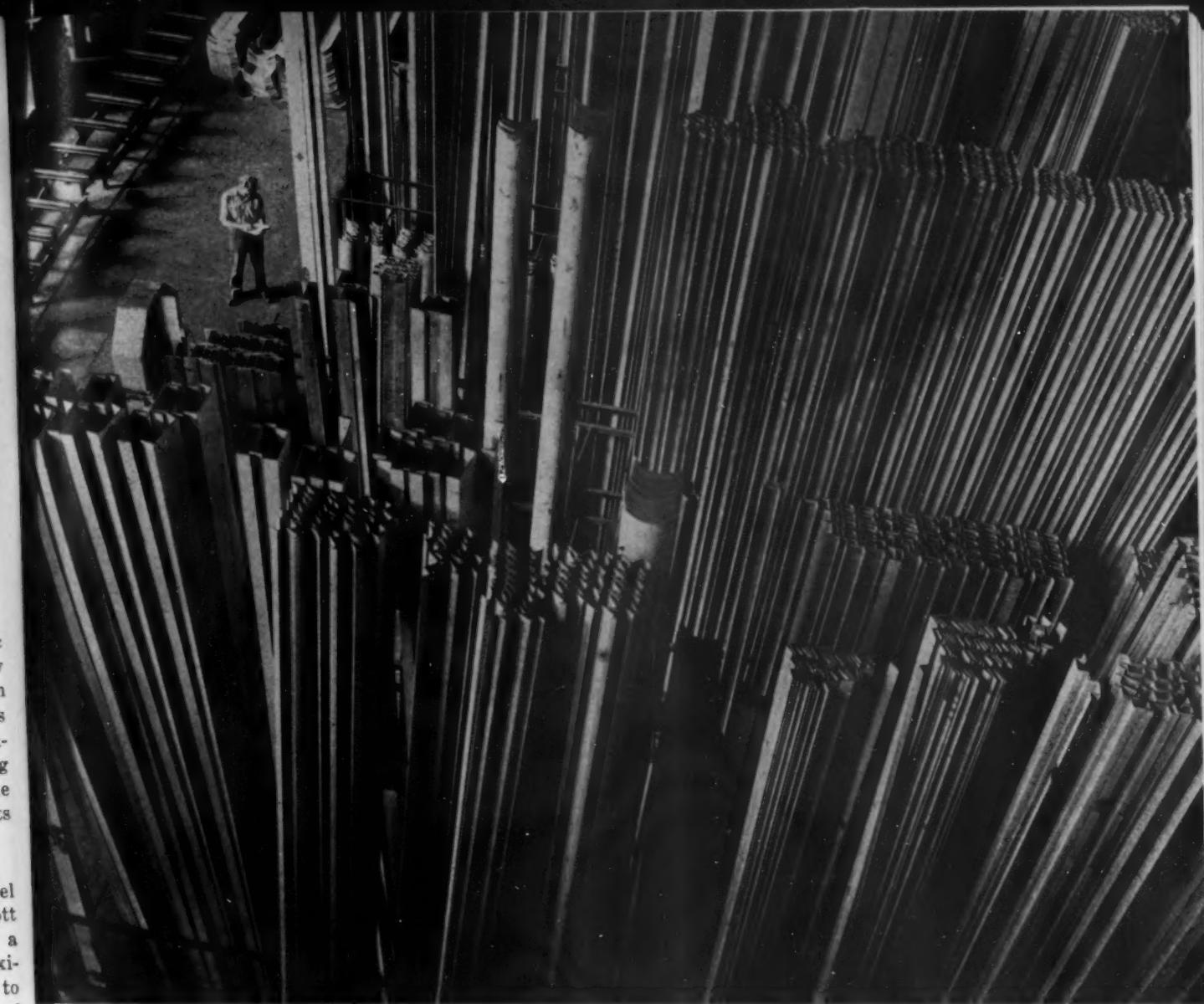
Many gas manufacturers and haulers of compressed gas (including many government agencies), are already enjoying the many advantages of INDEPENDENT Gas Supply Trailers.

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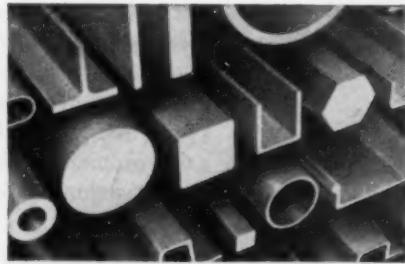
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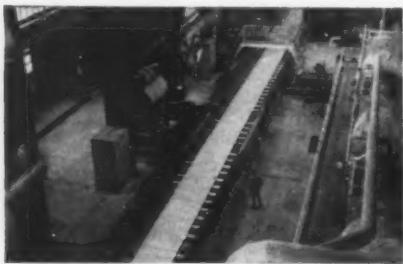
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AUTOMOTIVE ASSEMBLY LINE



Studebaker Competes With Big Three

Price cuts, power boosts in '55 put Stude Commander in direct competition with Ford, Chevy, Plymouth . . . Paul Hoffman chides auto press for "plight of the independents"—By R. D. Raddant.

♦ AT THE press preview of Studebaker's 1955 models, Paul G. Hoffman, chairman of the new Studebaker-Packard Corp., chided automotive writers for being partly responsible for the demise of the independents.

They must shoulder some of the blame, he implied, for contributing to the public's lack of confidence by sympathetically stressing "the plight of the independents."

While this is putting the cart before the horse, not all the results have been bad. As the first division of a merged company to show its cars and announce its plans for 1955, Studebaker indicates it is ready for the market with a realistic program and product based on some bitter experience in the past two years.

Now Low-Priced . . . Prices have been slashed in amounts varying from \$73 to \$287 for passenger cars, a pricing policy that virtually brought Studebaker from the medium to low price class. It is now directly in competition with Ford, Chevrolet and Plymouth.

At the same time, engine power in all three Studebaker lines has been raised to levels that will be in line with the industry if not ahead of it. The biggest price cuts and the new 140-hp engine will go to the Commander line, where the greatest market penetration is expected. It is anticipated that the former ratio of 60 pct for the 6-cylinder Champion line to 40 pct for the Commander will be reversed.

In addition, a new luxury line, the President, has been added.

This line has a 175-hp engine, but it still prices well below the former Land Cruiser, which it replaces.

Looks Good . . . In addition to price cuts and power boosts, Studebaker stylists have done an excellent job on the '55s, although the basic body remains the same. New bumpers and grilles especially contribute to a larger look and some trim applications, which appear to have a Packard influence, have created a big car effect, all to the good.

The new lines should bring the results that S-P management wants and needs. This is a sales rate to sustain a minimum production figure of 15,000 cars a month. This might be called the break even point. In fact, at one dealer meeting, Studebaker executives called their price cuts "pricing in anticipation of the market."

Cut Production Costs . . . It is also pricing in anticipation of making the merger work in terms of cost savings. James J. Nance,

who moved up from Packard president to head of S-P, admits that "the monkey is on my back" to get manufacturing costs down.

He told **THE IRON AGE** that 1955 won't show the basic savings from common components or interchangeable parts, obviously because the two divisions had completed tooling prior to the merger. However, there will be savings from purchasing and marketing and utilization of single manufacturing facilities for both cars.

Reported. Not Caused . . . Going back to Mr. Hoffman's original charge that the press had a hand in undermining the single line producers, it should be pointed out that troubles were not touted in advance, but reported after they had set in.

It wasn't the reporters who created Studebaker's die problems in 1953 which kept the new cars out of showrooms when demand was at its highest. Nor did they create high labor costs, since remedied by an unprecedented union action, nor the Ford-Chevrolet death struggle that caught Studebaker among others in a crossfire.

It is true, however, that once doubt in the future of the independents began to form, it was the beginning of the end. In Mr. Nance's own words, the automobile market today "places a premium on volume." Getting that volume is the aim of the realistic program outlined for 1955.

Parts Are Problem . . . Back in the Model T era, spare parts were no problem for the Ford Motor



Automotive Production

(U. S. and Canada Combined)

WEEK ENDING	CARS	TRUCKS
Oct. 2, 1954...	64,432*	18,272*
Sept. 25, 1954...	54,918	16,986
Oct. 3, 1953...	118,894	23,930
Sept. 26, 1953...	116,635	24,318

*Estimated. Source: Ward's Reports

Co. Parts distributors just dipped into the bins and banks along the production lines and sent them to dealers across the country.

But today a Ford dealer may carry 7000 to 20,000 separate parts for cars dating back to perhaps 1928. A few Model A parts are still carried for those durable vehicles.

As one company, Ford has spent \$40 million in its current expansion program for parts facilities alone, resulting in 27 parts depots across the country. Nationally, Automobile Manufacturers Assn. estimates that the wholesale value of replacement parts sold across the industry in 1953 reached \$1,892,000,000. MOPar Parts Div. of Chrysler handles more than 90,000 different parts and accessories.

Parts A Separate Industry

Parts and accessories constitute a distinct segment of the auto industry, separated from the production end. Demand for most parts, of course, does not begin until a car is out of production, resulting in an entirely different method of procurement.

In fact, except for the few parts that are scheduled with the production of the specific car, called "all time buys," scheduling of replacement parts is completely divorced from production. Parts are continuously ordered over the year as they come into demand.

For certain parts, where the replacement volume is low, the all time buy will be made with the original production. For others, replacement parts are purchased from vendors or made by the parent company for years as the demand for parts indicates.

There is no rule of thumb. But in general any auto company continues to make available any part for which there is a demand. The

exceptions are parts that are too expensive to make in small quantities after volume becomes low late in a model's life.

AUTOMOTIVE NEWS

MoPar's fastest moving items.

In 90 days, more than 110,000 of the applicators have been sold to auto owners who want to touch up the scratches and blemishes.

The applicator looks and operates much like the fountain pen, but with a brush instead of a point. When the top is unscrewed, a steel ejector spring inside automatically snaps the brush into position, somewhat like the retracting nib on a ball-point pen pops into position when the trigger is pressed.

Let Tank Contract

Chrysler has always enjoyed its role as a leading producer of military tanks. It was humiliating indeed to the Chrysler hierarchy to lose out a year ago to Fisher Body in competitive bidding for a fat \$200 million order to produce M-48's. Chrysler recently regained its role as a leading tank producer by underbidding Fisher Body by \$7.6 million on a new \$160.6 million contract for 1800 of the Patton tanks.

By J. R. Williams

THE BULL OF THE WOODS



Operation Profit -

Maintained Easier with
Cutting Tools Ground on Cincinnati's

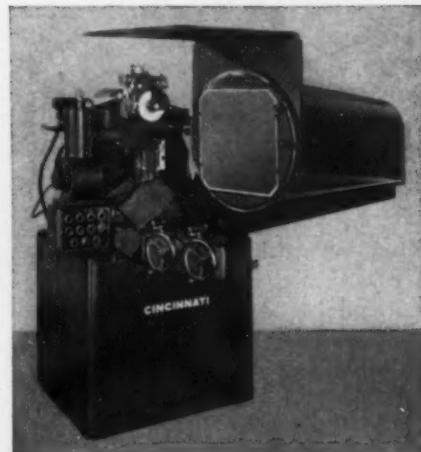


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Cutter and Tool Grinder

Versatility and wide range, combined with accuracy and speed, give the No. 2 machines the highest endorsement for cutter maintenance in metalworking shops everywhere. The table rolls on balls between hardened ways . . . the grinding wheel spindle runs on anti-friction bearings contained in a cartridge . . . table ways and spindle unit replaceable at small expense. Swing over table, 10" diameter; maximum distance between centers, 27". Catalog No. M-1734.

PROJECTO-FORM
Grinding Machine

For grinding small, accurate profile shapes on flat form cutters, lamination die parts and similar components. This machine combines grinding with an optical comparator unit. Master drawings made on Layout Scribing Machine, Catalog No. M-1612-4.



MONOSET
Cutter and Tool Grinder

For sharpening, repairing and making small cutters including countersinks, those required for die sinking, and other unusual shapes. Because of the universal construction, most jobs can be completed in one chucking. Catalog No. M-1591-2.



CONTOUR
Cutter Sharpening Machine

This machine grinds form milling cutters on the periphery of the teeth to a definite cutting clearance chosen for the work material. Catalog No. M-1552-1.



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Ready New Drive For Standby Controls

Congressional discussions will start early in '55 on White House standby controls . . . Present law expires June 30 . . . Lawmakers agree that some extension is needed—but not on how much—By G. H. Baker.

♦ NEW DRIVE to inject price, wage, and credit regulations into the Defense Production Act is in the making.

Soon after the first of the year, the new Congress will start to discuss what ought to be and ought not to be included in the control law beyond June 30—the expiration date of the current Defense Production Act. At present, White House powers derived from this act are confined chiefly to the rationing of scarce and strategic materials. Authority to control prices, wages, and credit is absent from the scene.

But—a preponderance of Democratic votes in Congress next year could mean that the drive for the additional controls will be successful.

How Far? . . . There is little doubt within the leadership of either party that the military preparedness program calls for an extension of the control law. But how far should the Congress go in expanding and embellishing the pattern of controls?

There is little agreement on this question. Soon after President Eisenhower took office, Sen. Capehart (R., Ind.) led an unsuccessful attempt to write "standby" control authority into the law. Sen. Capehart and his followers argued that the Administration was entitled to hold authority to control prices, wages, and credit on a "fire extinguisher" basis. "You hope you won't need it, but you're damned glad you've got it when you do need it." Opponents pooh-poohed, pointing out

that Congress had never failed to vote control authority in short order upon the arrival of any crisis.

Regardless of party alignments in the new Congress, the "standby" control proposal is sure to be brought up for debate—hot, lusty debate that could well result in a vote of approval for broader control powers. President Eisenhower almost certainly will sign such legislation, since he has specifically asked Congress for this authority.

Plant Radio Prospects Up . . . Appointment of George C. McConaughay to chairmanship of the Federal Communications Commissioner strengthens considerably the prospect for early FCC approval of extended intra-plant use of radio communication by industry.

Wider use of intra-plant radio will mean much in the way of time-saving and increased efficiency to heavy industries like steel, machinery, and automobiles. It will mean that operators of

trucks, fork-lift trucks and yard engines can be dispatched by voice radio broadcast to move materials, supplies, and company products on short notice—all of which spells lower costs and faster handling.

Reds Trade Politically . . . U. S. Commerce Department officials don't expect an appreciable increase in trade between this country and the Soviet bloc in Europe as a result of the recent reductions in the list of embargoed items.

John C. Borton, director of the office of export supply, predicts the Soviets will direct their trade to areas where it will do them the most good politically.

In addition, he points out, Eastern European countries have had great difficulty in filling their trade agreements. "They just don't seem to have enough goods wanted in the West to pay for what they buy," he says bluntly.

May Be Cut Off . . . Even if a firm is successful in selling to the bloc, Borton says, it should not expect long term business relationships, because the "Soviets have no compunctions about cutting off such relationships whenever it suits their purposes."

"The whole question of export licenses," he said, referring to Commerce Secretary Sinclair Weeks' relaxation of the embargo list, "is academic unless you can get orders."

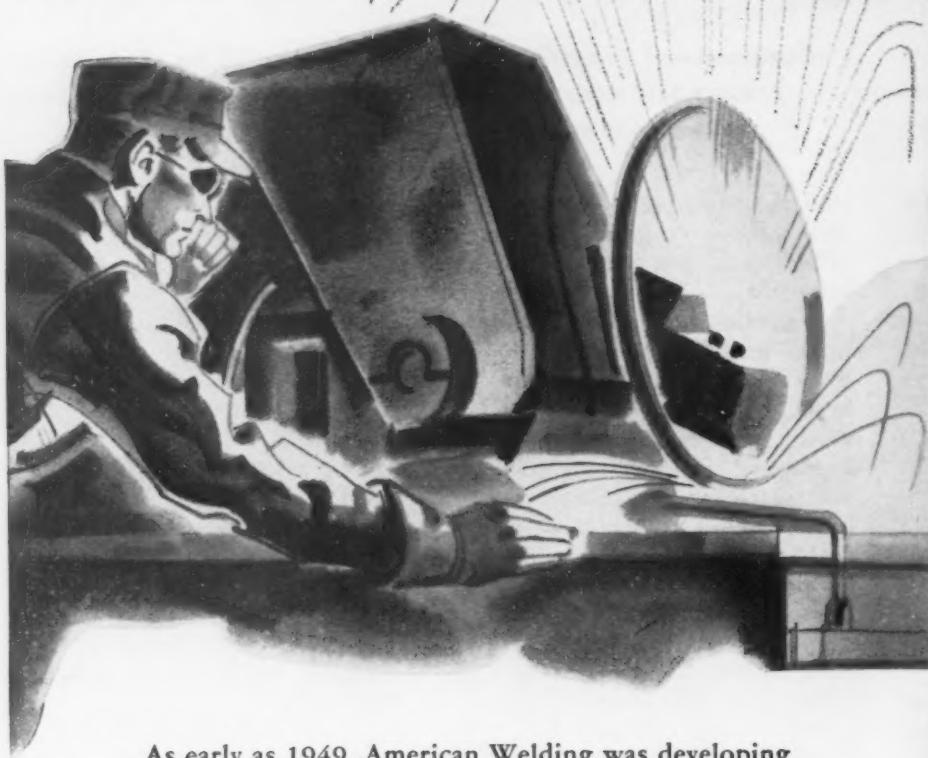
The reduced list will mean quicker service on applications for licenses because the number



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of applications will decrease. But he warns businessmen that customs officials will conduct more extensive physical checks of merchandise at docks.

More Trade Fairs . . . American participation in international trade fairs is to be increased as a result of a program that will be organized by Roy F. Williams, Boston industrialist.

Mr. Williams will act as special consultant to U. S. Commerce Dept., which plans better government backing for businessmen who want to display their products at the international exhibitions.

He describes trade fairs as "an integral part of the economic well being which foreign trade fosters."

Tariffs:

Businessmen, consumers to voice GATT opinions.

A new and more explosive phase of the public reaction hearings on this country's participation in the international General Agreement on Tariffs and Trade (GATT) will open in Washington Oct. 18, when businessmen and consumer groups will comment on specific tariff concessions.

An announcement that the Inter-departmental Committee on Trade Agreements would hold hearings on Article 28 of GATT came as a surprise. Committee last week concluded hearings on the substantive provisions of the agreement at which it would not permit any discussion of specific tariffs.

Article 28 permits a signatory nation to withdraw its tariff concessions after July 1, 1955, after first negotiating with the interested countries, and permits those countries to retaliate by withdrawing "equal" concessions. One of the items under discussion last week was whether the effective date of this provision should be extended, as it was twice in the past, because of the fear of a general tightening of world trade restrictions.

But the committee announced that interested persons could apply to be heard on the possibility of withdrawing specific tariff concessions

at the hearings. The signatory nations will meet in Geneva Nov. 8 to review the entire agreement.

Many industry observers fear a procession of "protectionists" and spokesman for distressed industries will flock to the hearings to plead for relief.

Article 28 involves only withdrawing concessions. Modifications may be made through the escape clause, under which a nation whose domestic industry faces injury may raise tariffs.

Contracts:

NLRB curbs reasons for signing closed shop agreements.

Business expediency is not a justifiable basis for a company signing a closed-shop contract or granting other preferential treatment in violation of the Labor Management Relations Act, National Labor Relations Board has ruled.

The board also ruled that an employer who moves his factory has a duty under the law to bargain concerning the effect of moving upon the tenure of the employees at the former plant. Rulings came in a case involving Shoe Workers Assn. of Milford, Mass., and Bickford Shoes, Inc. Charges against both were brought by a local of the A.F.L. Boot & Shoe Workers' Union.

Basis of the complaint was that the shoe firm closed its Boston factory and moved into a factory at

WASHINGTON NEWS

Milford which it secured from the Milford Shoe Workers Assn. for the cost of taxes, maintenance and part of the insurance cost. A provision of the lease required the firm give preferential treatment to the members of the association.

In ruling that the firm was required to negotiate with the AFL union with which it had formerly held a contract in Boston, NLRB also directed the firm to abandon granting preferential treatment to the workers' association. It did not rule on whether a provision of the lease could have stipulated the firm give preference to residents of the Milford area, but only that it could not operate a closed shop as far as union representation is concerned.

Seaway:

Ask larger locks for trend to bigger ships.

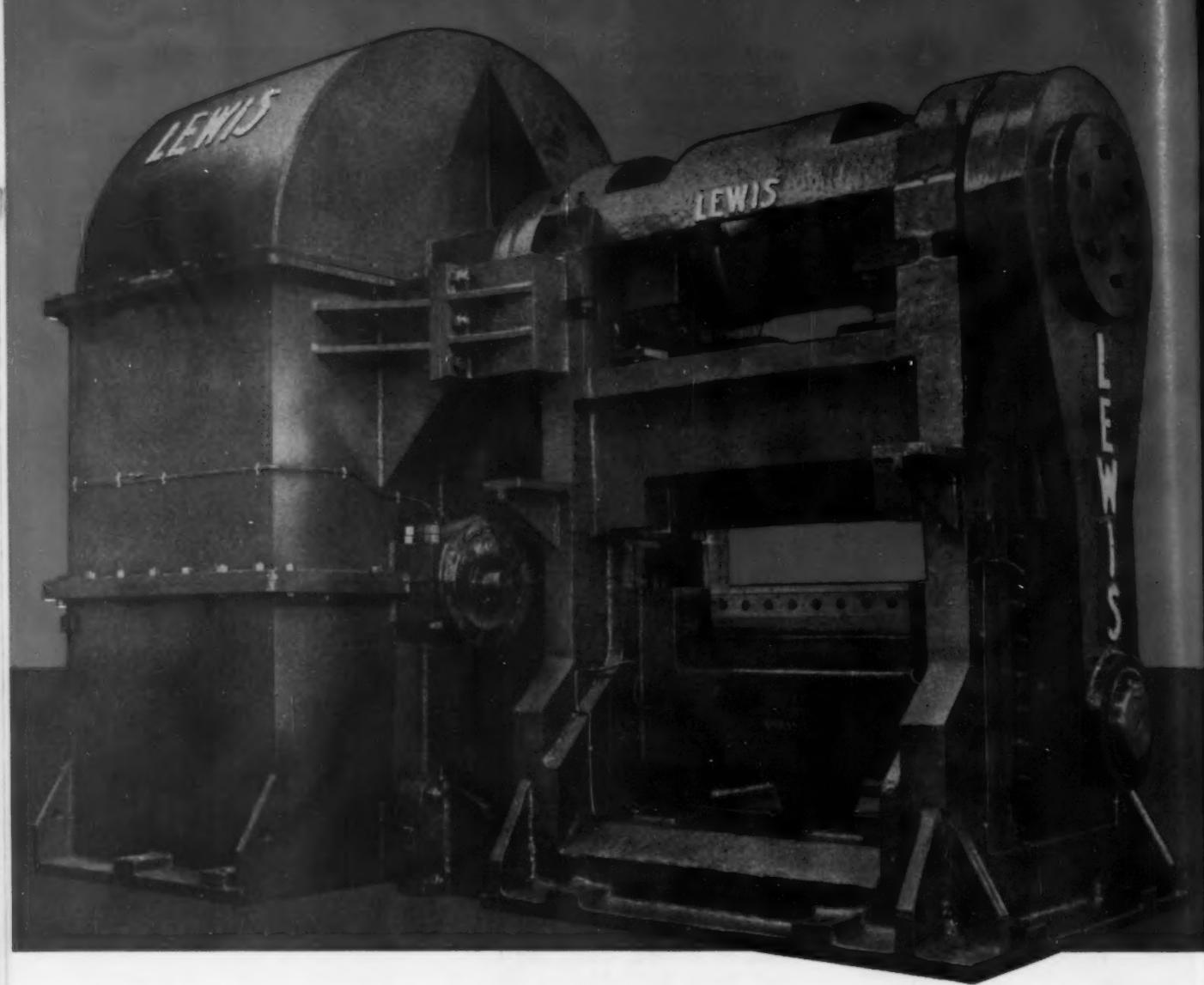
Dimensions of the locks for the St. Lawrence seaway should be longer and wider than originally proposed in order to meet the trend toward larger ships, experts say.

Lewis G. Castle, administrator of the Seaway Development Corp., was told at a hearing in Washington last week that the locks should be 900 ft long and at least 100 ft wide. The law authorizing the \$105 million project calls for the locks to be 800 ft long, 80 ft wide and 30 ft deep.

Adm. Lyndon Spencer, president of the Lake Carriers' Assn., Cleveland, predicts that "if the St. Lawrence seaway is to be used to the extent that has been predicted, it must meet the competition of other all-water routes and combined water and land transportation facilities."

He says the Dominion Marine Assn., Canadian counterpart of his own organization, has agreed "in general with our recommendations." He was also supported by spokesmen from the U. S. Navy, the U. S. Maritime Administration, and several cities affected by the seaway project.





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With a maximum knife pressure of 2,200,000 pounds and a combined stroke of 13 inches, this new Lewis up-and-down cut Shear has the capacity to cut hot steel slabs up to 7 inches x 42 inches. The knives are made of special shear knife steel . . . hardened and ground to withstand the terrific pressure. At continuous running speed, driven by a 250 hp motor, this big

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Aluminum Paces Coast's Industry

Food processing and packing, aircraft, shipbuilding industries keep smelter capacity expanding . . . Skilled labor pool, faster growing population make Coast an aluminum "natural"—By R. R. Kay.

• MEN from the tall timber country of the Pacific Northwest, amazed at the spectacular growth of the past 10 years, can look for even greater expansion of their economy in the next 10. And biggest vote of thanks may go to the aluminum industry.

Aluminum is exerting far greater impact on the economy than is generally realized. Aside from the prospect of more aluminum capacity there are growing opportunities in aluminum product manufacture. Even if smelting were not an important member of the region's industrial family there are some sound reasons why the Northwest's economy is well suited for aluminum manufacture, according to Stanford Research Institute.

Heavy Market Potential . . . Large food producing and processing industry offers an expanding market for such aluminum products, as irrigation equipment, farm machinery, harvesting tools, food packaging materials, food processing machinery, storage and transportation facilities.

Population, growing at a rate much faster than the nation as a whole, guarantees large-volume construction, expected to continue for many years to come.

Transportation equipment is one of the biggest and fastest growing markets for aluminum fabrication—aircraft, trucks and trailers, railroad cars, and ships.

Skilled Labor Available . . . To top it off, the Northwest has thou-

sands of workers trained to handle aluminum during World War II and the Korean emergency. These skilled workers are the nucleus of an aluminum fabricating industry that could be greatly expanded.

Availability of this skilled labor force helped decide Aluminum Co. of America to expand its fabricating operations in the Northwest. Alcoa showed the press region's first major extrusion operation at its Vancouver, Wash., plant. The \$7-million 2-year expansion program, which includes greatly increased wire and electrical conductor cable capacity plus an ingot casting unit, will eventually add 500 to the payroll, E. D. Mairs, Vancouver fabricating division manager, says.

See Fall Upturn . . . Optimism is the word for fourth quarter 1954. Leading businessmen in the 11 western states predict im-

proved business. A poll of 500 top executives shows 73 pct are convinced the coming three months will equal or better the quarter just ended. Among construction executives, 66 pct expect to do as well as or better than last year; manufacturing, 58 pct; finance, 60 pct; services, 76 pct.

And, quite in character, Southern Californians are the most optimistic, 70 pct seeing better business ahead. Sixty-one pct of those questioned in a Prudential Insurance Co. poll expect to jack up advertising and sales promotion spending in 1955 because of more intense competition and/or expansion operations.

Report Foundry Slump . . .

Foundries in Seattle report business 30-50 pct off from last year. And there isn't too much indication it will improve in the next few months. Foundrymen put much blame for the slump on the high cost of scrap.

The prolonged lumber strike which hurt business this summer is over. But foundry orders are not coming through as quickly as expected. Shops checked by THE IRON AGE report they have to do harder selling now and be able to rush the job out on short notice.

Build Armored Vehicles . . .

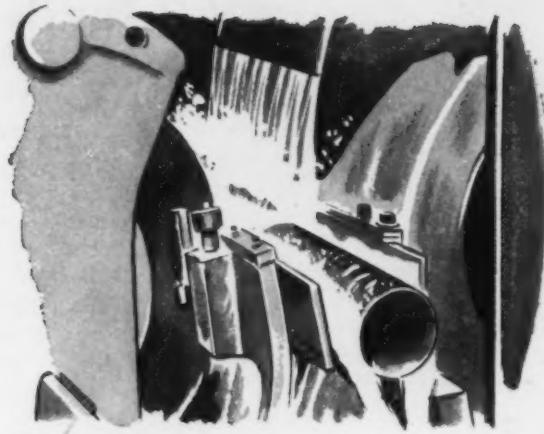
Food Machinery & Chemical Corp., San Jose, Calif., signed a new \$26.5 million contract with the Army to make M59 armored infantry vehicles. This gives the company about \$81 million in M59 contracts.



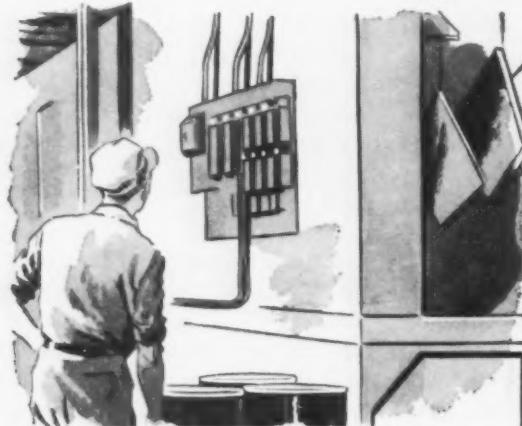
New S.E.C.O. is Tops For These Operations



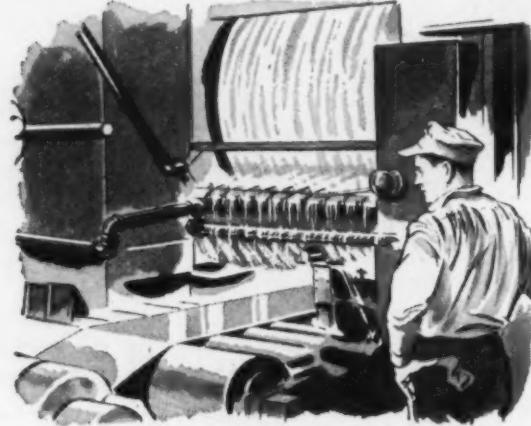
CUTTING WITH NEW S.E.C.O. Tools stay cool—require less frequent grinding. Finishes are uniformly good.



GRINDING WITH NEW S.E.C.O. Surface finishes are good. Loading and glazing of wheel are reduced—wheel life is prolonged.



WASHING WITH NEW S.E.C.O. Thorough removal of grease and dirt provides clean surfaces for smooth, long-lasting finishes.



ROLLING WITH NEW S.E.C.O. Rolls stay clean. You get maximum reductions and low power consumption.

New Sunoco Emulsifying Cutting Oil increases production, cuts operating costs. Its high machining efficiency permits uniformly good finishes, prolongs tool life. Its high detergency and purity keep tools, parts and machines clean. Its excellent mixing qualities permit its use in cold, hard or hot water. Test New S.E.C.O. in your own plant. For more information, call your nearest Sun office or write SUN OIL COMPANY, Philadelphia 3, Pa., Dept. IA-10.

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New Order Index Takes New Spurt

Rebounds to 147 from 124.7 in July . . . Foresee busy winter . . . Spurt in production equipment not limited to any special industry . . . Watch Vance Plan for further boost—By E. J. Egan, Jr.

• MACHINE TOOL manufacturers last week after a relatively slow mid-year season were getting ready for a hot Indian summer.

National Machine Tool Builders Assn. reports preliminary figures for August indicate the new order index will hit 147 compared to 124.7 for July. "The volume of inquiries and attitude of customers also indicates a busy winter," Tell Berna, general manager of the Association, told THE IRON AGE recently. One of the major factors, he said, is that new provisions of the Internal Revenue Dept. allow manufacturers to recover their investment faster, so outlook for sales is continually brightening.

Expect Boost . . . One major producer said his volume of inquiries at present is 25 pct over the low point in June and additional office help is being added to handle the volume. Expected increase in orders should break in about 2 or 3 weeks, he indicated.

Another builder said his pickup had already started this summer and if the present rate continues, 1954 will end up at least 5 pct over 1953 despite a dim outlook earlier this year.

One of the major shots in the arm for heavy machine tool manufacturers will be the closely watched Vance Plan. If final approval is obtained, ordering would commence in early fall on the "elephants" as the big tools are called.

Buyers Vary . . . The present spurt in inquiries and sales for

production type equipment, including automatic screw machines and chucking equipment, is apparently tied to increased confidence in a wide variety of manufacturers rather than any special segment.

One firm indicated about half the inquiries originate from automotive parts suppliers seeking duplicate facilities and removal of bottlenecks. Remainder is divided among various household appliance manufacturers gearing up for increased production.

Growing trend toward cutting labor costs through automation is proving a boon to machine tool builders with new types of auto-

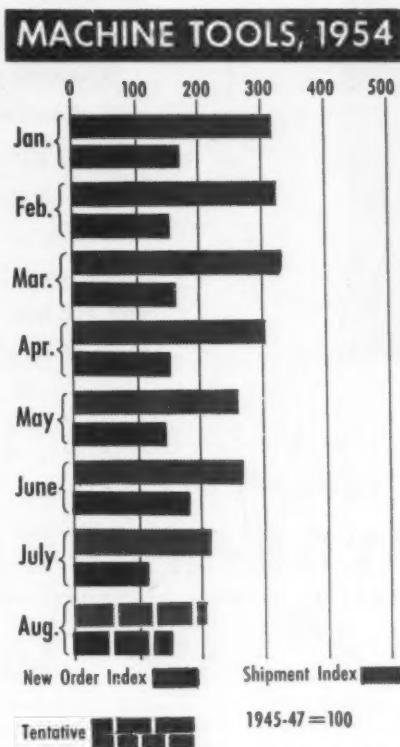
matic equipment. One firm, which recently introduced a new extra heavy duty lathe for short and medium run work, said labor saving costs are proving a major incentive to customers to buy now, despite good records with existing equipment.

Finish Press Glossary . . . Interchangeability of dies and fixtures between hydraulic and mechanical presses moves a step nearer realization with the NMTBA's announcement of the completion of a glossary of engineering terms for hydraulic presses. Work was done by the Engineering Standards Committee of the Association's Hydraulic Press section.

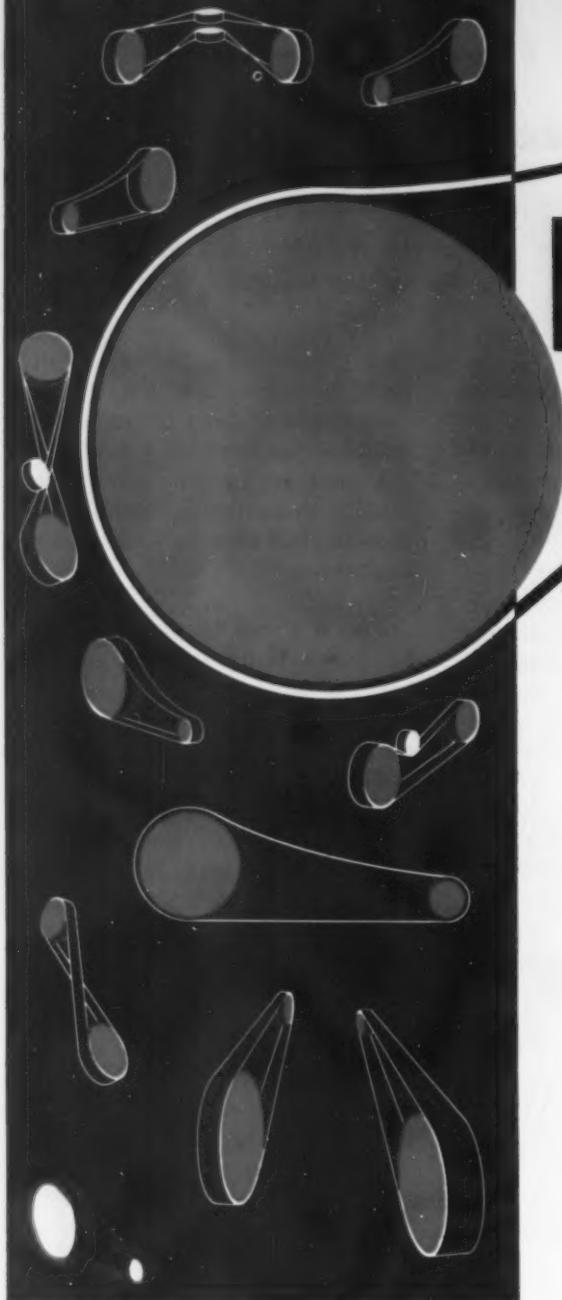
This is the first of five studies on problems of standardization. The report will shortly be followed by others on metalworking presses (other than vertical open gap), vertical open gap presses, compression and plunger molding presses, and accumulators.

The glossary of engineering terms is the work of a 21-man sub-committee, representing 21 hydraulic press manufacturers. Under the chairmanship of H. L. Reynolds, vice-president of the Verson Allsteel Press Co., the committee has devoted some 3 years to preparation of the glossary. It covers all types of hydraulic and compression molding presses, frame elements, cylinders, press control systems and components, pumps and various kinds of controls.

Copies are available from the NMTBA at 75¢ each.



more power per ply.. "more use per dollar"...



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Engineered for more power and longer belt life, users report Condor Compensated Belt lasts three to four times longer on many drives than ordinary transmission belts.

The R/M Compensation principle equalizes stresses between the plies . . . eliminates "loafing" inner plies and over-worked outer plies to prevent outer ply ruptures, fastener troubles and ply separation . . . causes of most transmission belt failures.

Condor Compensated Belt is designed to meet every need in a selection of driving surfaces . . . from low-tension to a required degree of slip, as on winder drives.

Whatever your requirements, you get more power with Condor Compensated Belt because each ply pulls its equal share of the load . . . "More Use Per Dollar" because it improves machine operation and lasts longer.

Ask your R/M Distributor for Bulletin 6808 . . . and ask him also about "more use per dollar" features of R/M hose, V-belts and conveyor belts.



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RM 420



The Iron Age

S A L U T E S

Charles L. Hardy

He has carried over into business life his undergraduate combination of brains, teamwork and drive . . . And he makes sure that he finds time to serve his industry and community.

"For combined excellence in studies and athletics" reads the citation of Dartmouth College's Morrill Allen Gallagher award. When "Sykes" Hardy won the award in 1927 he already had an enviable record in studies, varsity football and captaincy of the hockey team under his belt. Since then, he has made a postgraduate specialty out of that same combination of brains, teamwork and drive.

Sykes began his career with the steel industry with the company he today heads, Joseph T. Ryerson & Son, Inc. He started after college at Ryerson's Boston office, before long was traveling the New England territory as general sales representative.

After a period of executive training at the company's Chicago plant, Sykes was appointed manager of the Ryerson Philadelphia plant in 1945. He returned to Chicago in 1949 as assistant vice-president in charge of procurement and merchandise, was named assistant to the president the following year, elected president Jan. 1, 1951. He is on the board of Ryerson and parent Inland Steel Co.

Among his lesser known achievements was the invention, in 1942, of a continuously woven steam strainer basket, made of stainless steel wire, for use in turbines of Navy fighting ships and fast freighters.

Sykes takes his industry and community responsibilities seriously, works hard at them. He was elected a vice-president of American Steel Warehouse Assn. in 1954 and is a member of the association's executive committee. A director of the American National Bank & Trust Co. of Chicago, he is also a member of the Chicago Assn. of Commerce & Industry, the Art Institute, and the Chicago Historical Society.

Active in the Community Fund and Red Cross drives, he was appointed a section chairman, large firms division, of the 1954 Chicago Community Fund campaign, and is a director of the Chicago Commons Assn., a charitable organization. He is also an active supporter of the Junior Achievement program.

A member of the Chicago, University, and Glen View Clubs, Sykes now confines his sports participation to the relatively tame game of golf.

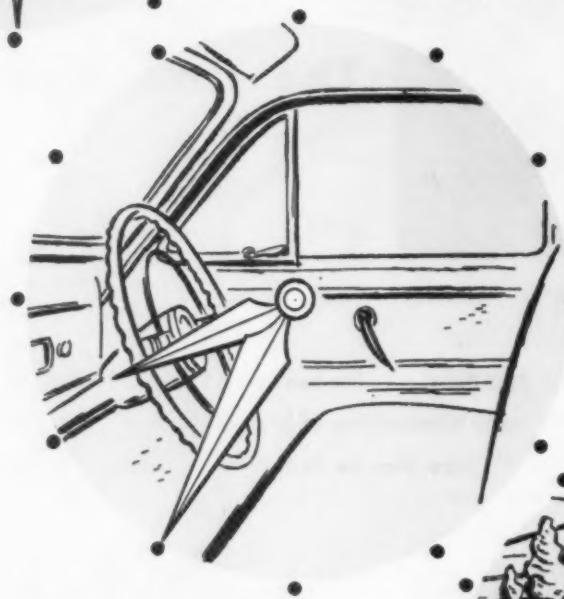
'round the clock with

CF&I-WICKWIRE WIRE



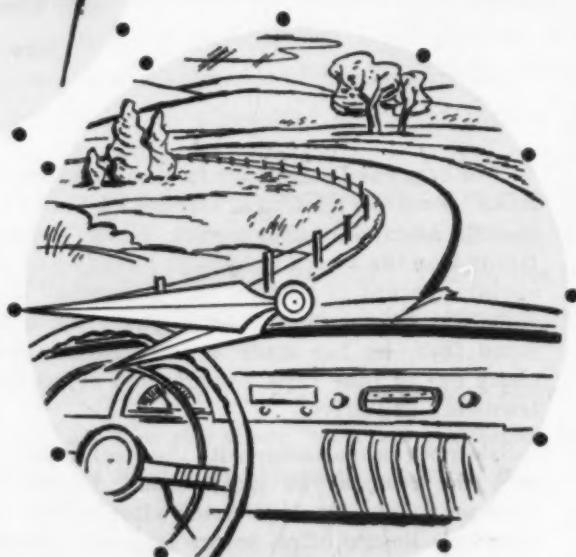
In this advertisement we continue to take you through a typical day in the life of John Q. Citizen . . . showing you the part CF&I-Wickwire Wire plays in his everyday activities. Our last advertisement took us through John's bedroom, the nursery and the kitchen.

garage—8:30 a.m. A lucky fellow, John rides to work every day in his car. This is his garage. Notice that it has a smooth-operating overhead door. What makes it swing up? A large spring. And—you guessed it—it's made from CF&I-Wickwire Wire.



automobile—8:35 a.m.

CF&I-Wickwire Wire contributes much to the comfort and efficiency John gets from his car. There's wire in the springs of the seat and back cushions. Under the hood in the valve springs and the starter spring—to mention just a few of the places where wire is used.



highway—8:45 a.m. Notice the ribbon of concrete over which John's car rides smoothly to its destination. Many people, just like John, fail to realize that what holds it together is Welded Wire Reinforcement Fabric—another of the products that use CF&I-Wickwire Wire.

Watch for the balance of John's day in succeeding advertisements that take him to his office, through his plant and finally home to the relaxation of his living room.

FOR THE WIRE YOU REQUIRE • CHECK CF&I-WICKWIRE

CF&I-WICKWIRE WIRE
THE COLORADO FUEL AND IRON CORPORATION



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2601

Where machinability comes first—

Iron Age
FOUNDED 1855

TECHNICAL
ARTICLES

Four Factors Determine Selection of LEADED STEELS

- ♦ Application of leaded steels to specific job problems requires a careful, objective consideration of basic job factors . . . Where applied, the job must be capable of being run faster, with higher spindle speeds, heavier cuts, a lower time cycle . . . The leaded steels are used most successfully where the ratio of machine time to material is high . . . Correctly applied they can help cut part costs.
- ♦ With the added machinability which the leaded steels afford go improved tool life and part finish . . . Where applicable these steels can be used without sacrifice in mechanical dependability or extensive change in production techniques or equipment . . . Decision to use the leaded steels must be based on a careful assessment of present costs and the potential for savings through improved machinability.

By F. J. Robbins, President, Sierra Drawn Steel Corp., Los Angeles

♦ LEADED STEELS represent a far-reaching step forward in the steel industry's search for freer machining steels. Where machinability is more important than physical properties in the selection of a material, the leaded steels can increase production, improve tool life and part finish, and lower part costs.

Leaded steels are premium steels. The producing mill charges an extra for the lead addition. Substitution of a premium steel for a material presently being used can only be justified economically if four basic job conditions exist. These are:

1. The ratio of machine time or work to material must be high.
2. The job must be capable of being run faster, with higher spindle speeds, heavier cuts, and a lower time cycle.
3. Machine tools must be equipped for and capable of increased spindle speeds and feeds.
4. The job must already be running as fast as possible for the material being used to give a true basis for comparison.

Leaded steels are not a cureall for all steel machining problems. But experience in many thousands of applications has verified the early predictions (1939) that leaded steels would permit substantial savings in fabrication costs of some parts. Research, use and experience, in the past 15 years have brought about a tremendous improvement in the quality of leaded steels. Where applicable, they can be used without sacrifice in mechanical dependability or extensive change in production technique or equipment. Decision to use leaded steels, however, must depend on overall economics of part production.

One metallurgical problem in connection with any additive to steel to promote machinability is its effect upon mechanical properties. Will the material do the job intended in the field? While sulphur, phosphorus, and nitrogen may be used to improve machinability, they also have a detrimental effect upon mechanical properties, both transverse and longitudinal.

A great deal of work has been done with leaded

Leaded steels are most useful where machinability and part cost are the prime factors affecting choice of material . . .

steels to determine the effect of lead upon mechanical properties. At the beginning of the development of lead additions, lead was added to standard analyses of openhearth screw stocks with medium sulphur. Tests proved that lead, when present in extremely fine and well dispersed particles, had no apparent detrimental effects upon mechanical properties.

In recent years AISI-B1113, with the analysis C, 0.13 max; Mn, 0.70/1.00; P, 0.07/0.12; S, 0.24/0.33, has come to be the accepted standard of machinability. Thousands of applications proved it best for high speed, heavy cuts, good tool life, good part finish, and lowest cost. This Bessemer steel, after cold drawing, gives maximum machinability. It is intended for use where machinability is more important than mechanical properties. It does not respond to heat treatment and does not develop a uniform hard case.

Machinability improved

Production of leaded steel for commercial use was interrupted during World War II. Near the end of and subsequent to World War II considerable development work was aimed at improving machinability of nonleaded steels.

Steel producers have improved machinability of B-1113 by lowering the carbon and silicon, both detrimental to tool life and causes of poor machinability. By producing a steel with 0.09 max carbon and silicon in the order of 0.02 max, a measurable improvement was effected. These steels have been used successfully in many applications. By careful control of analysis, particularly carbon, manganese, and silicon improvement in tool life and part finish, along with increased speeds and feeds have resulted.

Steel suppliers have also developed an openhearth screw stock AISI-C1213, with the same analysis as B113. New steelmaking techniques have permitted development of this openhearth product to higher levels of machinability than the blown Bessemer type and with greater uniformity from bar to bar and heat to heat.

When the production of leaded steel was resumed the improved machinability of standard steel grades, both Bessemer and openhearth, posed a challenge. To meet this challenge, an improved leaded steel combining qualities of both the blown Bessemer type and its openhearth counter-part was produced.

This steel has the analysis C, 0.15 max; Mn, 0.75/1.25; P, 0.04/0.09; S, 0.20/0.34; Si, 0.10 max; Pb, 0.15/0.35. It possesses mechanical properties comparable to those of the same base analysis without lead. It is not intended to be heat treated or carburized. Its application is for parts where field service requirements are nominal and

where machinability and part cost are prime factors in material selection.

For an appraisal of its application, field tests of machinability have been made on jobs which have been running off and on for some time in various shops. In four cases, significant reductions in cycle time were made and tool grinds were less frequent. In one case the user decided against leaded steel. A saving of 1 sec per piece was considered insufficient to warrant an additional steel cost of 12½ pct. Moreover, extra tool grinding made it unattractive.

Insofar as this type of high sulphur leaded steel is concerned, the case studies indicate there is a place in the list of standard steels for a low-cost material for duplicate part production.

In addition to the type of leaded steel just illustrated, another analysis of leaded steel is manufactured to the following: C, 0.15 max; Mn, 0.85/1.35; P, 0.04/0.09; S, 0.35 min; Si, 0.10; Pb, 0.15/0.35. This steel is intended to pick up where the other leaves off and, because of the high sulphur and manganese combination, to provide a maximum in machinability. For all but the most specialized of applications, the premium that must be assessed is too large, generally, to meet economic justification. It is capable of a machinability rating approaching the leaded brasses, but requires the very best in machine equipment and tooling to take advantage of its maximum possibility. Economically it can be justified only under ideal considerations.

Metallurgically, the additional sulphur, even though accompanied by higher manganese, has the expected effect upon mechanical properties, both longitudinal and transverse. Mechanically, economically and metallurgically therefore its application is limited.

Microstructure and hardness affected

The leaded steels discussed are not suitable for all the types of steel parts. For improved machinability, lead can be added to other standard steel grades. Studies indicate lead additions to various carbon and alloy steels not resulphurized do not change heat treatability, mechanical properties or field service response.

Some work on the medium carbon, through hardening steels, in straight carbon grades, has indicated an improvement can be expected in machinability as a result of the presence of the lead. However, in these steels microstructure and hardness are major factors in machinability and the annealing cycles must be carefully devised and faithfully followed to provide the best structure for the operations involved. Under such conditions of control, lead can improve machinability, tool life, and part finish.

LEADED STEEL CUT PRODUCTION COSTS HERE



OPERATIONS: Drill, Form, Knurl, Tap
Quantity: 5000 pc
Size: 1 1/16 in. Rd. CD
Equipment: Greenlee 2 in. 6-spindle

PRODUCTION COMPARISON

	B1113	Leaded Steel
Speed, sfm:	95	150
Operating time per pc:	78 sec	59 sec
Elapsed time between tool grinds:	8 hr	24 hr

RESULTS

Time saved per pc:	19 sec (24.5 pct)
Parts per tool regrind:	Leaded steel..... 1470 B-1113..... 370

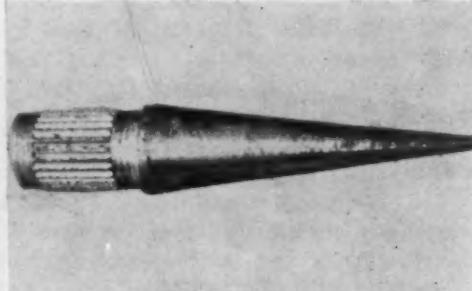
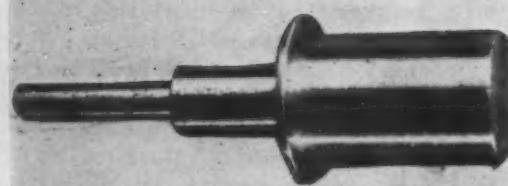
OPERATION: Turn
Quantity: 1000 pc **Size:** 1 1/2 in. Rd. CD
Equipment: Browne & Sharpe 2G

PRODUCTION COMPARISON

	B1113	Leaded Steel
Speed, sfm:	190	300
Operating time per pc:	40 sec	30 sec
Time between grinds:	3 hr	6 hr

RESULTS

Time saved per pc: 10 sec (25 pct)



OPERATIONS: Turn and Knurl
Quantity: Not reported
Size: 1/4 in. Rd. CD
Equipment: Browne & Sharpe OG

PRODUCTION COMPARISON

	B1113	Leaded Steel
Speed, sfm:	190	280
Operating time per pc:	35 sec	20 sec

RESULTS

Time saved per pc: 15 sec (43 pct)
 Parts per tool grind: Not reported

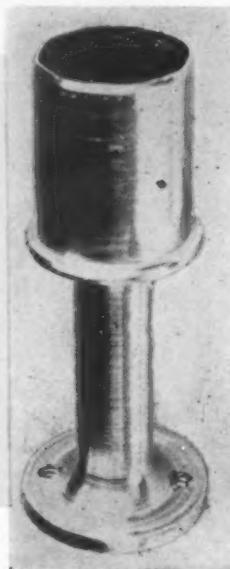
OPERATIONS: Form, Drill, Turn, Cut-off
Quantity: Not reported
Size: 1 in. Rd. CD
Equipment: Cleveland Model M multispindle

PRODUCTION COMPARISON

	B1113	Leaded Steel
Speed, sfm:	120	120
Operating time per pc:	Not reported	

RESULTS

Time saved per pc: Reported as increased
 Parts per tool
regrind: 50 pct with leaded steel as com-
pared with B-1113



Machinability of alloy steels can be improved with lead, but ductility, toughness, and fatigue resistance are reported lower . . .

Most leaded alloy reported on has been made and used in England. A tendency to lower ductility and toughness, increasing at higher tensile levels, and a reduction in fatigue resistance is reported. Alloy steel is generally specified to obtain a maximum in these properties. It is uneconomical to sacrifice any property for which the alloy steel is purchased.

Interest has been shown in possible health hazards resulting from use of leaded steels. There are none in the usual machine operations carried on at room temperatures. Lead, to be dangerous and to be absorbed in the human system, must be soluble. In steel at room temperatures, it is present as metallic lead.

At elevated mill temperatures, where volatilized lead fumes could escape into the atmosphere, precautions must be taken for fume dissipation. In heat treating, fumes are released into the furnace and dissipated. Since the lead, from 0.15 to 0.35 pct, is evenly distributed through the metal, only a very small amount could be volatized in operations involving heat. Here, as in welding operations, safety precautions are recommended.

MORE ON LEADED STEELS

For those who desire a more detailed study of the leaded steels and their applications to specific problems, the following bibliography will prove helpful.

J. H. Nead, C. E. Sims, O. E. Harder; "Properties of Ledloy Free-Machining, Lead-Bearing Steels." *Metal and Alloys*, 1939.

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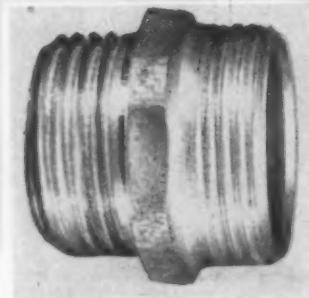
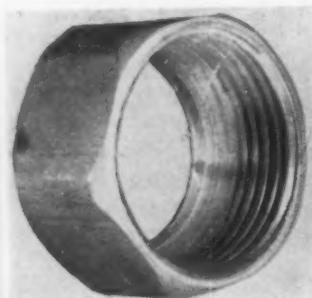
J. Woolman, A. Jacques, "Influence of Lead on the Mechanical Properties and Machinability of Some Alloy Steels." *Journal, Iron and Steel Institute, (Br.)*, 165, No. II, 1950, 257.

A. G. Kammer, "Control of Elimination of Health Hazards in the Manufacture and Use of Ledloy," *Northwestern University Medical School, Dept. Ind. Med. 3rd Ann. Symposium*, 1939, 78-89.

"The Machining Characteristics of Leaded Steel and Free-Cutting Brasses," *Titan Metal Mfg. Co.*, 1954.

H. W. Browall, J. F. Elliott, "Properties of Inland Ledloy Steels," *Inland Steel Co.*, 1954.

DIFFERENCE HERE WAS SLIGHT



OPERATIONS:	Rough Form, Finish Form, Drill Tap, Cut-off
Size:	15/16 in. RC-Hex CD
Quantity:	40,000
Equipment:	Acme-Gridley 11/4 in. 6-spindle

PRODUCTION COMPARISON

	Leaded B1113	Steel
Speed:	Increased 20 pct on leaded steel	
Operating time per pc:	8 sec	7 sec
Elapsed time between tool grinds:	Rough form tool ground twice for leaded steel against once for B1113	
All other operations: B1113 required tool regrinds 25 to 30 pct oftener		

RESULTS

Time saved per pc:	1 sec (12.5 pct)
Parts per tool grind:	Not reported
Remarks:	Estimate cost and finish equal for these materials

Hydraulic Drive Reduces Drop Hammer Maintenance

♦ A HYDRAULIC DRIVE system, in operation 3 years on a board type drop hammer at the Pittsburgh plant of Oliver Iron and Steel Corp., has helped increase production, given longer board life, and permitted substantial savings in maintenance.

The drop hammer is used in making industrial fasteners and pole line hardware. When the 2000-lb United Engineering and Foundry unit required an overhaul in 1951, engineers decided to replace the mechanical drive with a hydraulic drive. While repair of the existing mechanism would have permitted a lower first cost, engineers believed the potential advantages of a hydraulic drive would more than offset the higher first cost. A Berry hydraulic drive was selected.

In operation, the drop hammer employs two hydraulically driven rollers to lift the smooth, hardened maple board to which the 2000-lb hammer is attached. The front roller is on a slight rocker so it can be removed from contact with the board when the hammer reaches the top of its stroke. Then, as the hammer strikes the forging stock, the rocker is actuated on the rebound to grip the hammer boards, and the two rollers carry the hammer to the top strip for redropping. The rollers are driven by the fluid motors and are operated continuously.

There is little perceptible diminution of speed of the prime mover at the moment the hammer is picked up, nor is there any noticeable change in the brushing acceleration rate from top to bottom.

Three Berry Model 32-05B2 units—one serving as a pump, the other two as motors—were used in the installation. The pump, which along with its reservoir was installed in an unused corner of the shop, displaces 120 gpm at 650 rpm. It is belt-driven from a 30 hp, 1750 rpm electric motor. The oil makes a round-trip circuit of almost 200 ft before it returns to the reservoir. With the hammer in the "up" position at rest, the no-load pressure of the hydraulic circuit is 150 psi. At the moment the hammer strikes the die and the hydraulic motors pick up the weight, the system pressure surges to almost 1000 psi.

The two motors, units identical to the pump, are mounted on the hammer and connected in parallel. Each has a displacement of 42.61 cu. in. per revolution, with a rating of 678.24 lb in. torque per 100 psi. Each motor drives a roller

through a chain drive at the speed of 90 rpm.

This hydrostatic hydraulic drive system has been in service since June 1951 for 16 hours a day operating the 2000 lb hammer. The results—longer board life, less down time, more production and lower maintenance—have been better than predicted. The differential in initial cost has been more than absorbed by these savings.

Life of the hardened maple boards has been increased 400 to 600 pct. Annual maintenance cost has been reduced accordingly, resulting in a savings of approximately \$1000 to \$1200 in labor costs alone. In addition, about 80 hours of production downtime have been eliminated.

The replacement by hydraulic drive eliminated the necessity of rebuilding the gear box of the mechanical unit formerly used. Without considering lost production due to down time, this cost amounted to \$1000 every 2 years. Maintenance for special mill type motors was also eliminated. The hydraulic drives now have given over 3200 hours of trouble-free operation.



HYDRAULIC DRIVE on this board type drop hammer cut maintenance, increased board life.

For job lots—

Time Studies Lead to Greater Output, Closer Control in Diversified Plating—

By F. B. Dugan

Supervisor
Industrial and Manufacturing Engineering
Air Arm Div.
Westinghouse Electric Corp.
Baltimore

◆ Techniques developed from time studies and flexibility in shop layout permit diversified plating with ease and efficiency with a relatively small personnel . . . Parts of aluminum, magnesium or steel can be cleaned, anodized, electroplated, buffed or lacquered to close specifications almost as quickly as in a production setup.

◆ Time studies have also simplified instruction of new operators and assured more consistent results in work quality . . . Plating area is arranged in six parallel lines to facilitate handling, and to enable work to start at one end and finish at the other . . . Where this could not be done, rows were placed side by side.

◆ PRODUCTION LINE methods are usually not too applicable to job-shop type plating operations where much of the work is handled manually and processing is varied. This problem was especially severe at the Air Arm plant of Westinghouse Electric Corp., Baltimore, where hundreds of different types of work had to be processed daily in any of 16 different ways.

Parts handled at this shop include small flat work, angles, chassis, and an assortment of screws, nuts and fixtures used in electronic equipment. In a typical day, platers may be called on to finish a few thousand pieces by anodizing, electroplating, metal cleaning, buffing or lacquer-

ing. Moreover, these parts may be made of aluminum, magnesium or steel.

Company engineers worked closely with the Hanson-Van Winkle-Munning Co. in laying out a plating room for such diversified operation. After it was laid out, individual operations were studied to determine the best and fastest way to perform each. Time studies were made for each operation.

All operations currently performed conform to rigid military specifications. A great variety of plating and finishing is being done with surprising ease and efficiency with a relatively small personnel. This is attributed to the flexibility of the layout and techniques established through the time study.

Another important contribution of the time study is the ease in instructing operators. Studies specify in detail the sequence of elements required to plate or finish a part. Conditions are easily duplicated by new operators, assuring consistent results, high work quality and a low reject rate.

Layout eases handling

The job of handling the variety of sizes and shapes of parts became a problem. This was solved, however, by designing a simple but universal type of rack. It is about 30 in. long with a series of rungs fastened to it, and can be made easily from aluminum at low cost.

Another problem was that of specifying the tanks to use in a plating or finishing sequence. This has been overcome by using layout sketches which not only show which tanks to use, but clearly specify the best route.

In laying out the plating room, floor space was first divided into four general areas; racking, plating, unracking and buffering. The shop was set off separately to prevent interference from plant operations.

The buffering and polishing operations then were confined to a separate room within the shop. Also set off within the plating area, and enclosed in wire cages, were the motor-generator sets and the chemical laboratory.

The plating area was set up in six parallel lines to facilitate handling. Dual anodizing in the first line; magnesium cleaning and processing, and coloring in the second; aluminum cleaning in the third; tin, zinc, and cadmium plating in the fourth; nickel and chromium in the fifth; and copper, silver and gold in the sixth.

Shop layout was also planned so work would be taken in on one end of the plating room, racked, processed, unracked, and finished work delivered at the other end. Individual operations were set up in the same way. Cleaning of aluminum, for example, involves seven baths: solvent rinse, alkaline cleaning, cold rinse, hot rinse and a water dip. These baths were arranged in line to follow the flow of work.

When this could not be done conveniently, rows were located side by side. Thus, coloring

OPERATIONAL DETAILS FOR PLATING, ANODIZING AND COLORING

Tank	Process	Solution	Capacity, gal	Time	Temperature, °F
1	Solvent	Lacquer thinner	500	1-3 min	70
2	Cleaner Alkaline	Patent	300	1/2-3 min	...
3	Cold Rinse	...	...	...	...
4	Pickle	Sulfuric	180	5 min	175
5	Cold Rinse	...	...	...	...
6	Nitric	HNO ₃	180	1-2 min	200
7	Cold Rinse	...	...	...	...
8	Zinc Dip	Zinc	180	1-3 min	70
10	Cold Rinse	...	...	...	...
12	Strip	...	...	...	...
13	Copper	...	180	3 min	100-170
14	Cold Rinse	...	...	...	...
15	Copper-Silver	Cyanide	140	10 sec	70
16	Silver Strike	Cyanide	140	10 sec	70
17	Silver Plate	Cyanide	130	15 sec	70
18	Cold Rinse	...	...	...	...
19	Gold Plate	Cyanide	140	flash	150
20	Gold Reclaim	...	...	...	...
21	Hot Rinse	...	...	...	...
22	Electric & Cleaning	...	500	1-3 min	180-200
23	Electric & Cleaning	...	300	1-3 min	180-200
24	Cold Rinse	...	...	...	...
25	Pickle	...	...	...	...
26	Pickle	...	...	...	...
27	Bright	...	...	...	...
28	Cold Rinse	...	...	...	...
29	Cyanide Dip	NaCN	250	dip	...
30	Cold Rinse	...	...	...	...
31	Cadmium	Cyanide	250	15 min	...
32	Zinc Plate	Cyanide	190	20 min	...
33	Cold Rinse	...	...	...	...
34	Iridite	Acid	190	20 sec	...
35	Cold Rinse	...	...	...	...
36	Caustic	Caustic	190	5 sec	...
37	Cold Rinse	...	...	...	...
38	Warm Rinse	...	...	...	...
39	Chromium	Acid	190	variable	122-131
40	Chromium Reclaim	...	...	...	...
41	Nickel	High pH	250	1 hr	70
42	Tin	Alkaline stannate	250	15 min	180
43	Cold Rinse	...	...	...	...
44	Hot Rinse	...	...	...	...
45	Alkaline Clean	...	...	...	...
46	Cold Rinse	...	...	...	...
48	Hot Nitric	...	...	...	...
49	Cold Rinse	...	...	...	...
50	Hot Rinse	...	...	...	...
51	Water Dip	...	...	...	...
52	Lacquer Spray	...	...	...	...
53	Pickle	HF	100	5-15 min	70
54	Cold Rinse	...	...	...	...
55	Seal	Dichromate	250	30 min	212
56	Cold Rinse	...	...	...	...
57	Hot Rinse	...	...	...	...
58	Alkaline Cleaner	...	300	1/2-5 min	180-180
59	Cold Rinse	...	...	...	...
60	Chromic Acid	...	410	1/2-1 hr	95
61	Cold Rinse	...	...	...	...
62	Sulfuric Acid	...	...	...	...
63	Cold Rinse	...	...	...	...
64	Gray Dye	...	300	15-30 min	140-160
65	Black Dye	...	300	15-30 min	140-160
66	Green Dye	...	300	15-30 min	140-160
67	Setting Tank	...	...	...	...
68	Hot Seal	...	...	...	...
69	Hot Seal	...	...	...	...
70	Strip	...	...	...	...
71	Cold Rinse	...	...	...	...
72	Drying Table	...	...	...	...
73	Strip (HCl)	...	...	...	...
74	Strip	...	...	...	...
75	Alkaline Cleaner	...	...	...	...
76	Solvent Cleaner	...	...	...	...
77	Cold Rinse	...	...	...	...

Practices and layout are applicable to a commercial job shop with equally good results . . .

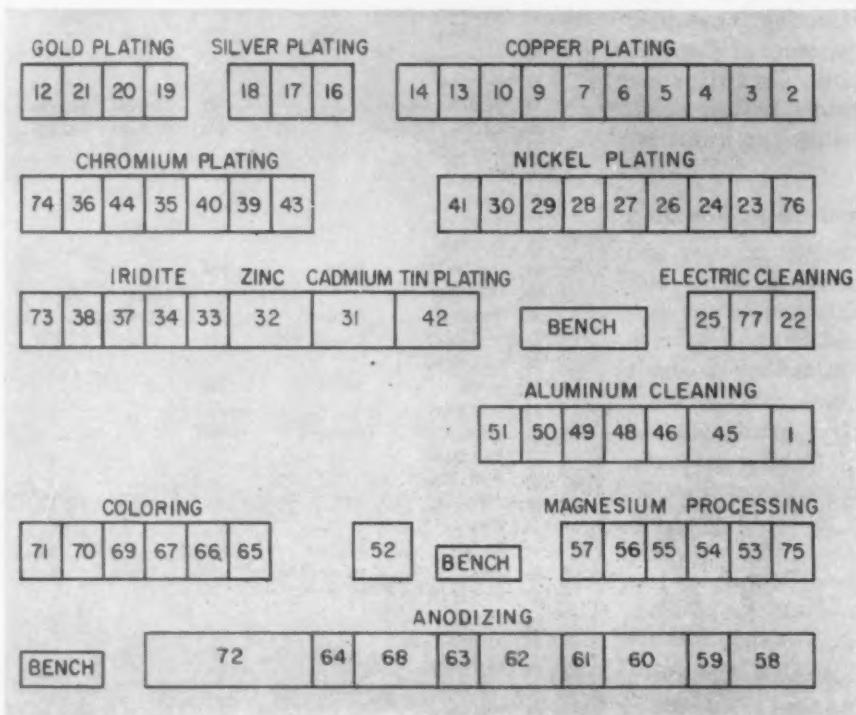
and anodizing are carried out in adjacent lines, as are copper and nickel plating.

Temperature control equipment and individual electrical controls for plating tanks contribute to quality control. All heated tanks have self-operating temperature control regulators. Each plating tank has its own rectifier and control panel. Capacities of the selenium rectifiers range from 150 to 500 amp. Two H-VW-M generators

supply current to the sulfuric and chromic acid anodizing tanks.

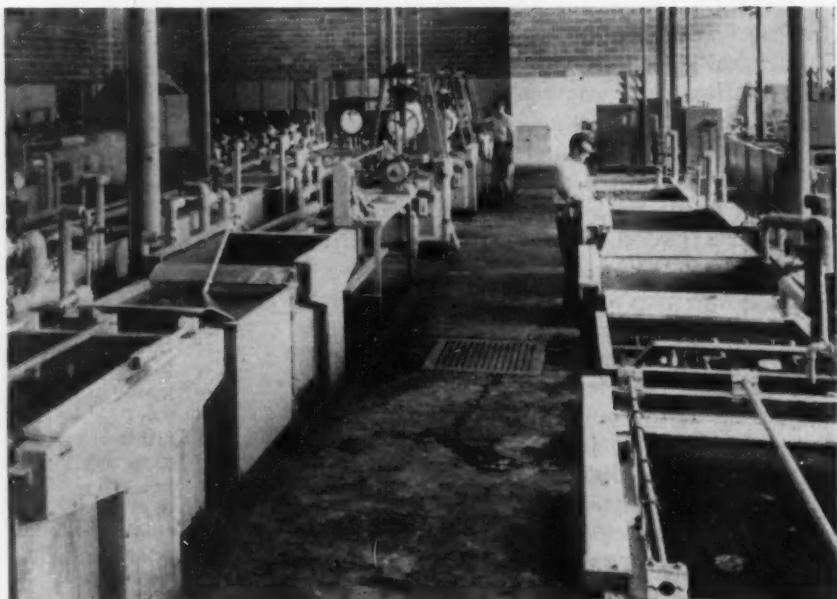
Another feature of the plating shop is the down-draft exhaust. Noxious fumes from plating baths are carried out by ducts at the sides of the tanks. They are removed from the building through 3-ft trenches in the floor. They are made of wood covered with an acid-resistant material and lined with a tar compound. They run parallel to the plating lines and lead into a central receiving trench.

Although the shop was set up primarily to fill military contracts, many of the practices can be applied to commercial job shops with equally good results.



ORDERLY LAYOUT enables cleaning, plating and anodizing a few thousand parts daily on six lines involving 16 different operations.

JOB SHOP consists of 73 tanks for processing the many diversified parts of aluminum, magnesium and steel. Tin, cadmium and zinc barrel plating is done in line at left.



In limited space—

Large, Corrugated Pots Simplify Slag Handling

♦ **EXTRA CAPACITY** cast steel slag containers with corrugated walls do an efficient, economical job of slag handling and disposal at the Kansas City plant of Sheffield Steel Corp.

The oversize pots replaced smaller, smooth-walled types as a natural solution to two of the firm's major slag-handling problems: (1) Pouring area behind the five 125-ton basic openhearth furnaces is very narrow; (2) the openhearth practice generates an unusually large amount of slag.

Hot metal for the openhearts comes from two cupolas which supply approximately 33 pct of the openhearth charge. Even though the hot cupola metal is desulphurized, normal sulphur content of the iron is still relatively high. This makes it necessary to increase the lime charge in the openhearth, producing a relatively large volume of slag per ton of steel.

To solve these slag handling problems of volume and space, Sheffield uses 260-cu ft capacity cast-steel slag containers or cinder pots which do not have to be emptied frequently. Lifting and carrying of these pots is kept to a minimum, which helps to unclutter the pouring area and frees overhead cranes for other service.

These cast steel pots, made by Mackintosh-Hemphill Co., Pittsburgh, have corrugated sides. The corrugations prevent pot distortion as the slag cools and they also allow the slag to slip out

more easily when the pot is dumped. Average life of these pots at Sheffield is 6 years.

Eleven pots take care of the normal 10-heat per day openhearth production. Only four of the five furnaces are in operation at any one time.

After being filled with slag, the pots are picked up by a spreader bar which engages lifting lugs. This makes it unnecessary for a man to go back into the pouring area to arrange chains or other devices for pot removal. An overhead crane carries the filled pots to a train of cars which have air-operated dumping mechanisms. These cars go by rail to the slag dump, about one mile from the plant.

The same slag pots are used at the electric furnace which produces approximately 100 tons of steel every 4½ hours. In the electric furnace operation, it is often necessary to pour off the initial slag and to remake a second slag. When this is done, the initial slag going into the pot expands the corrugated wall. By the time the second slag is poured, the pot itself is usually in an expanded condition which the first slag has already shrunk away from the pot walls.

In an ordinary cinder pot when molten slag enters the recesses between the expanded pot wall and an already cooled slag button, eventual removal of the hardened slag is quite difficult. But the corrugated pots, with their greater cooling capacity, have worked out very well in service.



SLAG from corrugated pots is dumped by air-actuated devices on special railroad trucks.

Highly Developed Conveyor System Combines Versatility with Maximum Handling Efficiency

- ◆ Parts handling at Heintz Mfg. Co.'s \$8 million cold extrusion plant is almost completely conveyorized for maximum handling efficiency . . . To prevent excessive downtime only the simplest mechanical, pneumatic and limit switch transfer devices are used . . . Added to the highly developed conveyor system are automatic bar feed tables, pallet stackers and an automated weighing and sorting machine to further reduce handling.
- ◆ Along with simplicity and ease of maintenance, versatility was an important factor to be considered in setting up the system . . . Flexibility was necessary to meet future product requirements as well as present needs . . . Provisions also had to be made for tying in a supplementary press line with the two lines planned.

By E. C. Beaudet, Technical Editor

◆ A MAXIMUM of automatic handling with a minimum of downtime is achieved by Heintz Mfg. Co. in the production of cold extruded parts. At its \$8 million plant in Philadelphia, parts handling on the cold extrusion line is almost completely conveyorized. Added to the highly developed conveyor system are automatic bar feed tables, pallet stackers and an automated weighing and sorting machine.

In designing the handling system, Heintz engineers conveyorized to the greatest possible extent without overgadgeting. Only the simplest mechanical, pneumatic and limit switch transfer devices were used to prevent excessive breakdowns in the system. A wide range of conveyors, including overhead chain and slack, roller and belt, chain-on-edge and chain pocket are used to meet product needs in various processing stages.

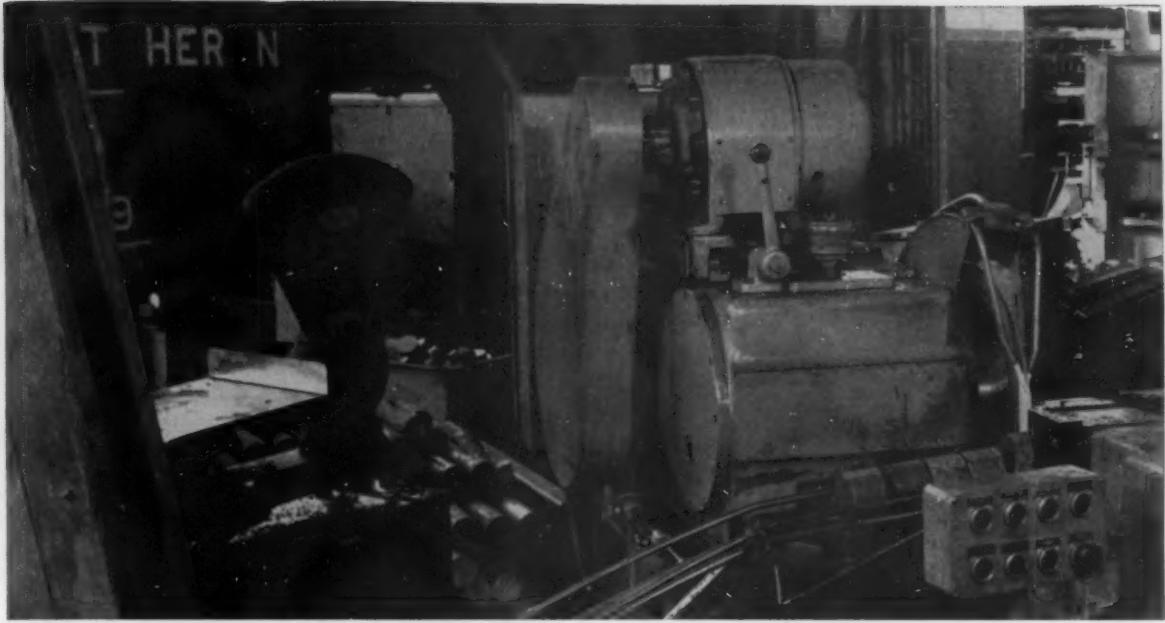
Along with simplicity and ease of maintenance, versatility was an important factor to be considered. In line with Heintz's policy of diversification in other departments, great effort was used in setting up this new cold extrusion facility for maximum flexibility short of handicapping efficiency in handling high production jobs.

In the early stages of the company's Navy contract, size, weight and production requirements were determined for one product. Pro-

visions had to be made, however, to handle a range of products from 2 in. diam x 6 in. long and 4 lb in weight to 4 in. diam x 16 in. long and 12 lb. Production for this range of parts was estimated from 250 to 550 per hour.

In addition to the flexibility needed to meet future product requirements, the system was also set up to accommodate processing changes with a minimum of rearrangement and tooling. Provisions also had to be made for the possibility of tying in a supplementary press line with the two lines planned. Within these basic limits the system had to be set up according to; (a) the size and number of products produced, (b) distance and direction of part travel, (c) protection of parts from damage and (d) accessibility to the operator.

One major item now produced on the cold extrusion line is a one-piece, 2.75-in. GP rocket head for Naval Ordnance. Processing of this part starts with crane loading of bundles of 13 to 16-ft long 1010 steel bars onto automatic bar feed tables of 20-in. Motch & Merryweather new design cutoff saws. Bars are automatically positioned in the saws. The cutoff cycle takes 6 seconds. After cutoff, slugs 3 1/8 in. in diam x about 2 1/2 in. long and weighing 5 lb, 8 oz drop into a gravity chute and onto an elevating chain-



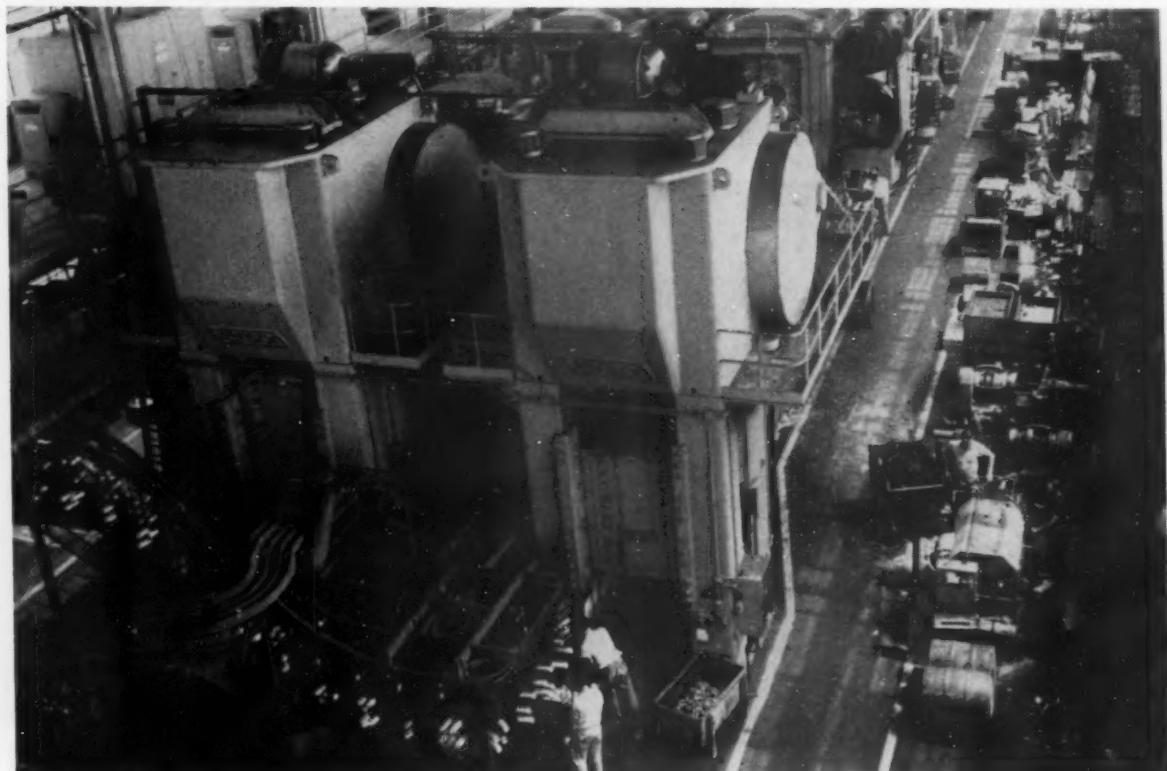
GRAVITY chute carries slugs from cutoff saws and deposits them in elevating chain conveyor.

type conveyor. Hooks fastened to the chain pick up the slugs and raise them 9 ft into an overhead steel slot accumulation conveyor.

The accumulation conveyor is laned so that slugs can be programmed to either of two Visioneering automatic chamfering machines for deburring. This arrangement permits the handling of two different products through the chamfering machines at the same time. Mesh-pocketed belt decline conveyors carry parts from the accumula-

tion conveyor to a gravity feed chute at the load end of the chamfering machines. After the chamfering operation, slugs are again carried in a pocketed belt conveyor to the load hopper of a Wheelabrator shot-blasting machine which provides a uniform surface for surface treatment.

A flighted belt incline conveyor transports the slugs from the blasting machine to a point where they are manually transferred to an automatic unscrambling, weighing and sorting machine.



COLD EXTRUSION line is serviced by 21 presses. Note juncture of conveyor system, left.

"The weighing and sorting machine ejects over and underweight slugs into separate bins . . ."

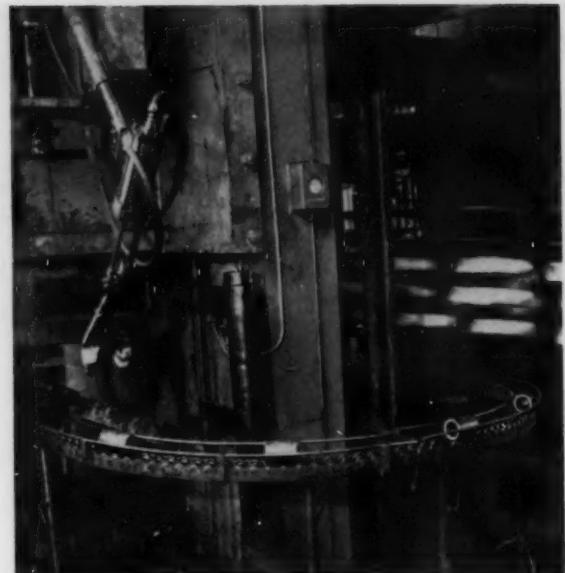
Four different products can be gaged in this machine within a tolerance of $\pm 1\frac{1}{4}$ oz. The machine automatically rejects over and underweight slugs into separate bins. Overweight slugs are reprocessed for further use. Slugs are automatically positioned flat on their face for travel through the machine which can be bypassed for parts whose weight and size are not critical factors at this stage.

After checking, gaged and bypassed parts once again travel on the same conveyor by means of a programming device. They are carried to an overhead wire mesh belt conveyor 616 ft above the floor. This 365-ft conveyor transfers the slugs to an adjacent building for later processing.

First extrusion is backward

Before delivery to the press line, slugs are transported by the interplant conveyor to the load end of a Udylite surface treating machine. Slugs are manually transferred to baskets which carry them through the Pennsalt Foscoat process which consists of cleaning, pickling, phosphating and lubrication with a series of rinses between. Cycling time is about 45 min. Parts also receive this Foscoat treatment between the other press operations when necessary.

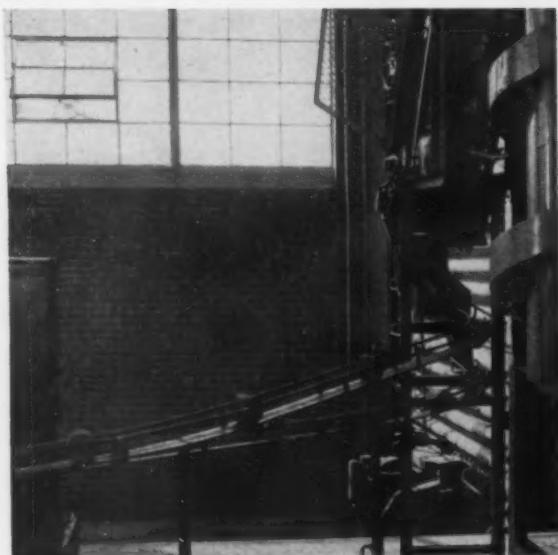
First press operation is sizing on a 1000-ton Clearing press rated at 480 strokes per hour. After sizing, slug dimensions are $3\frac{1}{8}$ in. diam



MECHANICAL hand removes partially formed slug from press and places it on roller conveyor.

and 3 in. long. There are 21 presses servicing three production lines in the plant.

Following the sizing operation knockout pins raise the slug from the die cavity. It is then placed manually on a gravity roller conveyor which runs into a 4-laned steel slat floor conveyor. This conveyor services the entire press line. Runout from each of the roller conveyors is set to fall into one of the four conveyor lanes depending on the subsequent operations to be performed. The 4-laned conveyor return from the press line runs overhead from the floor of



SLUGS travel from a laned overhead accumulation conveyor which programs different products to two automatic chamfering machines.



AUTOMATIC weighing and sorting machines gage four products within $\pm 1\frac{1}{4}$ -oz tolerance. Under and overweight rejects are sorted.



SPINDLE type chain on edge conveyors carry parts through tunnel-type gradiant furnaces.

the press area and branches off to service the heat-treating and surface treating machines.

The first cold extrusion operation, done on a 1000-ton mechanical Clearing press is a backward extrusion. The slug is formed into a $3\frac{1}{8}$ in. diam cup with a wall thickness of $7/16$ in. and length $5\frac{1}{4}$ in. Reduction is about 55 pct. Parts are removed from this press by a mechanical hand which places them directly on the return 4-laned floor conveyor. The press is rated about 480 parts per hour for this operation.

Following backward extrusion, parts are sent



PALLET stacker automatically tiers four pallets into one unit for more efficient handling.

through tunnel-type Selas gradiant furnaces for a 1150° F anneal for 6 to 10 minutes. Chain-on-edge spindle-type conveyors carry the parts through these furnaces. Slugs then travel through a cooling tower where they are retained for 30 minutes. Hardness of the annealed parts is from 55 to 75 RB.

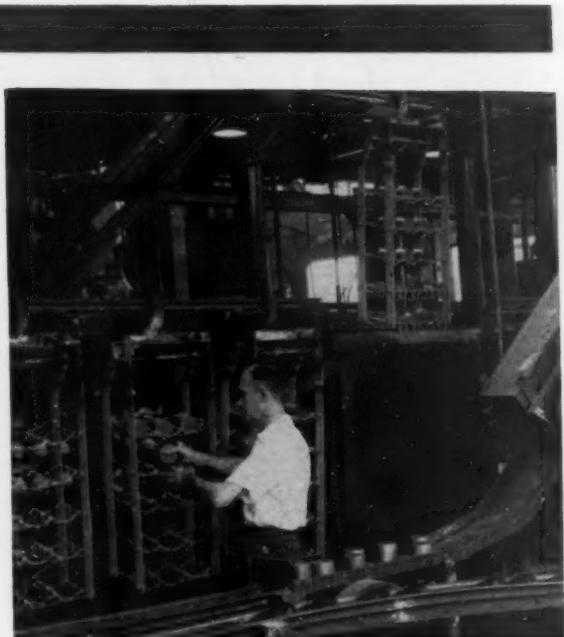
Single chain-on-edge conveyors carry parts back to the surface treating machines. Once again the product is sent through the Foscoat baths and returned to the press line. This cycle is repeated as many times as needed to complete the product. Conveyors to the press line travel overhead to conserve floor space. Parts are held in a motionless position on a Christmas-tree fixture to protect the applied process coatings.

Drawing on a 250-ton mechanical press is the next press operation following backward extrusion. Reduction after drawing is 42 pct. Wall thickness is decreased to $5/16$ in. and outside diameter about $2\frac{1}{8}$ in. Length of the part is 9 in. Parts are then given a 6 min 1150° F anneal and retained for $1\frac{1}{2}$ hour in a cooling tower. The partially formed parts are trimmed off $3/16$ in. at the upper end and another coating is applied.

Nosing, and sizing of the bourrelet is performed in one stroke on a 100-ton Verson press. Dimensions are held to ± 0.005 in. tolerance on diameters. Following this operation the formed parts are dropped by the press operator into a roller chute to a National gaging machine where five dimensions are checked simultaneously.

On leaving the inspection station a wire mesh belt pocket conveyor carries the parts through washing, cleaning, stress relieving (at 700° F for $1\frac{1}{2}$ hours), phosphoric acid pickling and a final oil spray coating to prevent corrosion. A pocket conveyor is used here to protect the final finish.

After oiling, parts are transferred by chain-on-edge, spindle-type conveyors to inspection.



INTERPLANT overhead conveyor 365-ft long delivers slugs to automatic surface treating machines for manual loading on fixtures.



HEATED pattern and core box are invested with sand-resin mix poured into a coating frame.

WITH pattern and core box in position, loose stripper pins are dropped in pattern holes.



"One man" foundry—

Inexpensive Shell Molding and Coremaking Machine Handles Job Work

By W. G. Patton, Asst. Technical Editor

- ♦ It is possible to get started in shell molding without a large capital outlay . . . New, simplified equipment is available for handling experimental or job casting work, makes idea of the "one man" foundry more practical . . . Machine has been operated more than a year with excellent results.
- ♦ Various models will accommodate patterns up to 20 x 30 in., permit stripping action up to 6 in. . . . Shell molds and shell cores may be made separately or simultaneously . . . Machines require little physical effort and no particular skill to operate.

- ♦ AFTER MORE THAN 3 years of experimental work a new shell mold and shell core-making machine has been developed primarily for the small and medium size foundry that would like to get started in shell molding without making a large financial outlay.

The Gee machine was designed and built through the combined efforts of Metco Processing Corp., Ypsilanti, Mich., and Gladwin Corp., Wyandotte, Mich. The builders had in mind units in several sizes on which it would be possible to (1) develop shell mold patterns, (2) test new and untried materials, and (3) handle short runs of nonproduction items.

For economy, cost of the smallest machine is under \$1400. And the units will make both shell

molds or shell cores, either separately or simultaneously. Although the basic machine is simply constructed, there is little physical effort involved in its use.

Knockout pins in the new equipment are simple and economical; they can be removed quickly and are easily replaced. Patterns developed on the machines can be used on fully automatic, high-production molding equipment. Gas heat is used for maximum flexibility.

During the past year, more than 20 different shell mold patterns have been developed and proved on this machine. All types of metal patterns—iron, steel, brass, bronze and aluminum have been used successfully. Runs up to 10,000 molds have been made from a single pattern, indicating the adaptability of the new shell molding units for small job operations or experimental or short run work in captive foundries.

The model shown in an accompanying illustration will accommodate any pattern up to 14 x 18 in. Stripping action up to 6 in. is permissible. Other models are available, accommodating patterns 7 x 9 in. and 20 x 30 in. In each case, stripping action up to 6 in. is permitted.

In other illustrations, equipment is shown in use on experimental and short run molds and cores. This machine has been employed effectively both to develop satisfactory molds and cores for long run production castings and to

prove the practicability of shell molding methods as an economical means of turning out a specific casting. While experimental work has thus far overshadowed its application for production, practical use of the Gee molding machine for jobbed castings has been adequately demonstrated.

Each model machine can use any combination of core boxes or patterns that will fit under the dump box. Even larger patterns than those mentioned can be employed, provided stripping pins are not too close to the edge.

As indicated, the patterns or core boxes are bolted to the rollover frame by means of adjustable mounting rails. Once the core box or pattern is fitted to the rails, only a few minutes are required to mount the pattern or core on the machine.

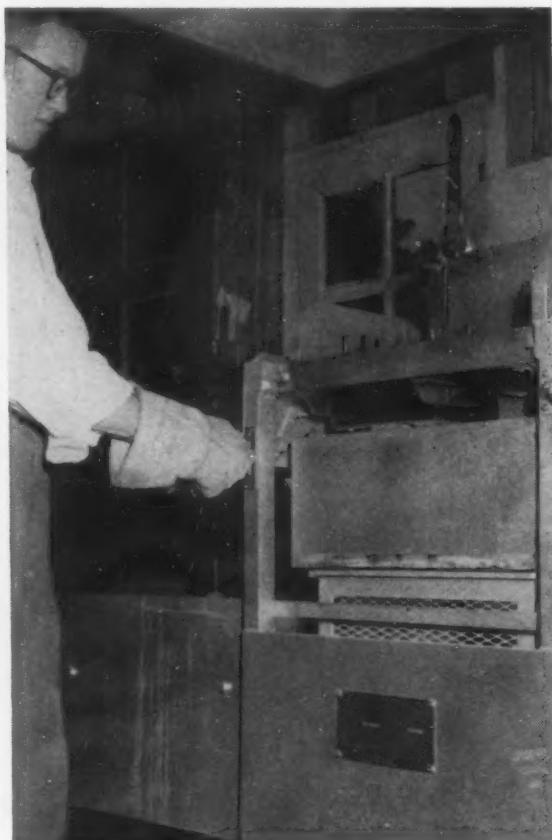
Loose stripper pins are simply dropped into holes drilled in the pattern plate. To minimize cost and permit easy replacement, $\frac{1}{4}$ in. spikes (60 penny) can be used. Pins are also available with a variety of head sizes.

Actual operation of the machine is very simple. When the machine is operating, a dial thermometer is inserted in either the pattern or the core box. After lighting, the oven is moved forward over the pattern. This causes the flame to go automatically on high fire.

Using maximum heat available, the pattern or



DUMP BOX is positioned over the pattern assembly and locked by pulling it forward.



AFTER rollover, inverted dump box is removed by elevating an air-actuated stripper plate.

"An average workman can be taught in a few minutes how to coat the pattern and how to operate the dump box and rollover . . ."



OVEN moves over the shell and core, cures the pieces with gas flames above and below.



SHELL is stripped by air-actuated plate. Operator manually removes core from box.



TYPICAL shells and cores made on the versatile new equipment, plus some castings.

core box will usually come up to temperature in about 8 to 10 minutes.

Burners are fully adjustable and can be set to accommodate requirements for any size and shape of pattern and any operating speed desired.

With the pattern heated to temperature, a wood or metal coating frame is placed around it. The pattern is invested by pouring the sand-resin mix into the container. A core box is, of course, always completely filled. The dump box is placed over the pattern assembly and locked by pulling forward.

After investment is completed, the rollover frame is inverted. With the pattern in an inverted position, the stripper plate is elevated. This automatically releases the dump box.

As the stripper plate is lowered, the dump box is slid out of the machine. Meanwhile, the pattern is returned to an upright position.

With the pattern in an upright position, any visible defects in the shell can be repaired quickly before the oven is advanced over the shell for curing.

While the shell or core is curing, unused sand-resin mix is poured through a screen into the investment box.

Oven retracts after curing

At the end of the curing period, the oven is retracted. The shell is then stripped from the pattern by an air-actuated stripper plate. Cores are removed manually from the core box.

By adjusting heat input, sufficient heat can be applied to the pattern during the curing period so that another cycle may be started immediately after the pattern is cleaned and parting solution has been applied. Experience indicates a delay of 5 seconds after applying the parting agent gives best results.

Flexibility has necessarily been the foremost consideration in designing the new equipment. For this reason, it is possible to make shells and cores that could not be made on regular production machines. At the same time, it was recognized that it would be necessary to allow the forming of shells and cores under any conditions that are produced today commercially. This requirement has been fully met by the new machines.

Operating experience with the equipment has proven that an average workman can be taught in a few minutes how to coat the pattern and how to operate the dumpbox and rollover. Allowing a precise molding job to be handled by a relatively unskilled workman is undoubtedly an outstanding advantage of the new machines.

Machine specifications are given in the accompanying table.

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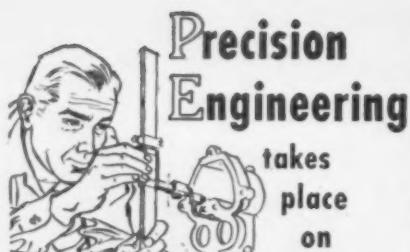
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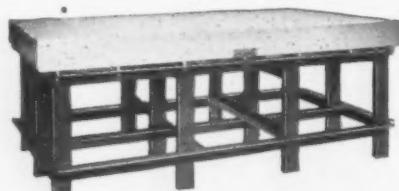
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New Technical Literature:

Pressure measuring

A new line of pressure measuring elements is described in this new bulletin. The line of pressure instruments designed for direct measurement, remote transmission and automatic control is discussed. Stressed are the greater operating power and improved accuracy achieved with these instruments. An application chart shows the choice of element materials available. Sections cover electronic pressure instruments, cabinets and panels, controllers, and transmitters. *Foxboro Co.*

For free copy circle No. 1 on postcard, p. 139.

Lubrication

Centralized lubrication is presented in this lively "comic book" which depicts the grease-splattered misadventures encountered with old-fashioned industrial lubrication practices. This fast-reading book tells the uses of Alemite "Accumeter" measuring fittings. *Alemite Industrial Department.*

For free copy circle No. 2 on postcard, p. 139.

Steel descaling machines

New machines developed for descaling steel sheets, plates, and coils after hot rolling or heat treating are discussed in this bulletin. The safety advantages and economy of these machines are pointed out. Featured is the small loss of metal beyond the scale removed. Drawing and specifications give further information. *Pangborn Corp.*

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Lathe catalog

A precision cabinet lathe is discussed and illustrated in this new catalog. Ease of operation is highlighted by a description of two new types of drive available, a production drive and a variable drive. Accessories and attachments for a broad range of work are displayed. *Rivett Lathe & Grinder, Inc.*

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FOR YOUR COPY

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, page 139.

Industrial trucks

"On-The-Job Fact Sheets" report industrial-truck users' actual experiences with Edison storage batteries in a wide range of industries. Subjects covered are operation in extreme temperatures, life, dependability, ease of maintenance, and ability to stand abuse. *Battery Div., Thomas A. Edison, Inc.*

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Speed reducers

Cone-drive shaft mounted speed reducers are discussed and pictured in this new booklet. Discussed are their thermal capacity, interchangeable parts, housings, bearings, seals, service factors, and output torque ratings. Complete specifications of the models are given in tables. Drawings and rating tables give additional information. *Cone Drive Gears, Div. Michigan Tool Co.*

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Quality control

Quality control and how it is used in improving the quality of finished products is discussed in this new folder. It discusses statistical quality control and how it is applied from raw material through to finished product. Examples of how quality control is applied in the manufacture of small metal parts are given. The various laboratory tests involved in quality control are pictured. *George K. Garrett Co.*

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Catalogs & Bulletins

Products catalog

Bucyrus-Erie's complete line of excavating, drilling and material handling equipment is described in this catalog. Some of the sections cover quarry and mine shovels, blast hole drills, stripping shovels, walking draglines and railway cranes. Condensed specifications and illustrations give additional information. *Bucyrus-Erie Co.*

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Stainless fasteners

The physical characteristics and uses for stainless fasteners are covered in this seven-page report. Information is given about cold heading and other fabricating techniques that have made possible new types of fasteners. *American Screw Co.*

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Tile adhesive

The advantages of using CTA-11 Ceramic Tile Adhesive are discussed in this six-page data sheet. Application instructions for most surfaces encountered are given. Some of the advantages discussed are long bonding time, versatility, toughness, weight and time saving, heat resistance, and cleanliness. *Minnesota Mining & Mfg. Co.*

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Industrial products

The industrial products of American Brake Shoe Co. are emphasized in this new catalog. The catalog contains sections on ferrous castings, non-ferrous castings, bearing materials, sintered metals, steel forgings, welding products, air compressors, industrial pumps, dredge pumps, and railroad products. *American Brake Shoe Co.*

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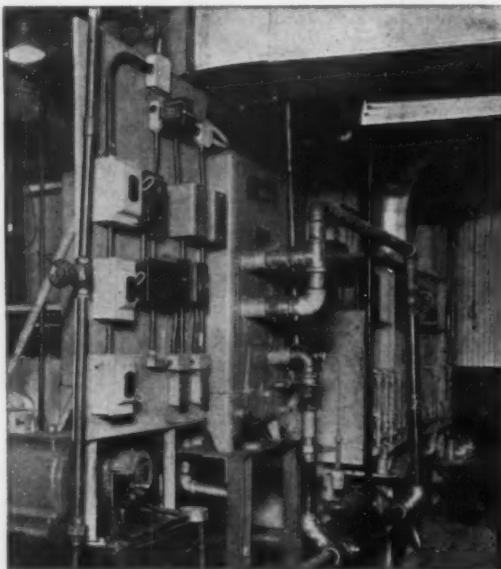
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Savings in piping, pumping and power as well as great savings in cooling water return the cost of the equipment to you in a short time. The Niagara Aero Heat Exchanger saves nearly all of the water consumed by conventional cooling methods.

For the complete story of other benefits and savings, write for Bulletin 120.

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FREE TECHNICAL LITERATURE

Shapers

The Michigan Tool Shear-Speed shaper line is summarized in this booklet. Outlined is the process for cutting gears, splines, cams, sprockets, and miscellaneous external shapes. Tooling, accessories, machine operation, controls, feeds, and applications are discussed. Illustrations and tables of specifications provide further information. *Michigan Tool Co.*

For free copy circle No. 12 on postcard, p. 139.

Surface broaching

A new and versatile line of mechanical horizontal broaching machines is described in this illustrated bulletin. Stressed is the speed of these machines, and their potential for high production work. A speed chart gives more information. *Colonial Broach Co.*

For free copy circle No. 13 on postcard, p. 139.

Platform truck

A high lift platform truck with four-wheel steering, powered either by electric or gasoline-electric equipment, is detailed in this new folder. The non-telescoping model and the telescoping model are described. Details of construction are given. Specifications of these models are included. *Elwell-Parker Electric Co.*

For free copy circle No. 14 on postcard, p. 139.

Air controls

The air control system on the "Michigan" line of excavator cranes is described in this new brochure. The theory and practical application of air controlled clutches are explained. Pictures, drawings, tables and graphs give additional information. *Clark Equipment Co.*

For free copy circle No. 15 on postcard, p. 139.

Molding machines

A new line of plastics injection molding machines is covered in this new booklet. The machines are for molding polystyrene, acrylics, cellulose acetate, cellulose acetate butyrate, elastomeric vinyls, nylon and other thermo-plastics. *Hydraulic Press Mfg. Co.*

For free copy circle No. 16 on postcard, p. 139.

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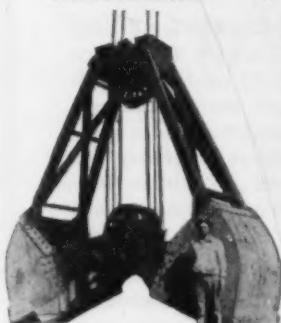
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Coke Pushers
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Wellman ore and coal handling bridges give fast and efficient operation



One of two 6-ton Coal
Handling Bridges in
this installation.



6-ton Wellman Williams
Type Coal Bucket used with
these bridges.

● Take advantage of Wellman's long experience in designing and building handling bridges of many types and capacities. Your selection from the complete line will provide fast and efficient handling of coal or ore. Wellman equipment, in service the world over, is recognized for its long life and dependable service. It is backed by more than half a century of engineering experience.

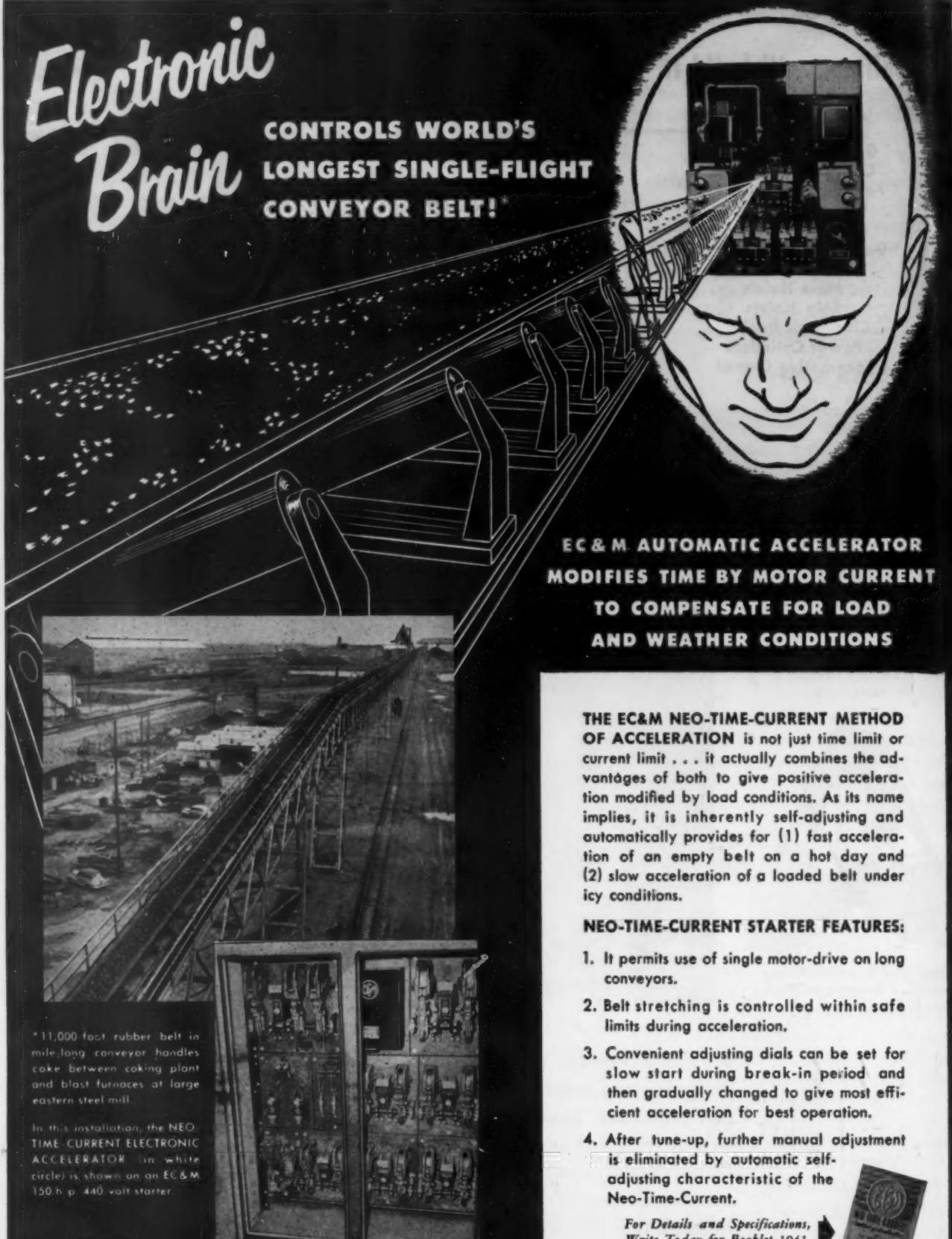
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CLEVELAND 4, OHIO

Electronic Brain

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LONGEST SINGLE-FLIGHT
CONVEYOR BELT!



* 11,000 foot rubber belt in
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coal between coking plant
and blast furnaces at large
eastern steel mill.

In this installation, the NEO-
TIME CURRENT ELECTRONIC
ACCELERATOR (in white
circle) is shown on an EC&M
150-h.p. 440 volt starter.

THE EC&M NEO-TIME-CURRENT METHOD OF ACCELERATION is not just time limit or current limit . . . it actually combines the advantages of both to give positive acceleration modified by load conditions. As its name implies, it is inherently self-adjusting and automatically provides for (1) fast acceleration of an empty belt on a hot day and (2) slow acceleration of a loaded belt under icy conditions.

NEO-TIME-CURRENT STARTER FEATURES:

1. It permits use of single motor-drive on long conveyors.
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3. Convenient adjusting dials can be set for slow start during break-in period and then gradually changed to give most efficient acceleration for best operation.
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For Details and Specifications,
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THE ELECTRIC CONTROLLER & MFG. CO.

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"Looks like everything you said, Jim"

"This is the spot I was telling you about, Ken. Good cover, good feed, lots of birds, not many hunters. Bill Brown and I got our limits here the other day. Boy, is he a terrific shot!"

"He was telling me about it too, Jim, and it sure looks like everything you said. Bill stopped in yesterday with prints on those aluminum extrusions Wolverine is making for us. Their Tubemanship is even better than Bill's marksmanship. I was certainly impressed with those prints. Did you ever see that Alabama plant of theirs—in Decatur?"

"No, but I've seen the pictures Bill has."

"They don't do it justice. When you see it for yourself you realize why it's called 'the world's most modern tube mill'."

"It's close to your southern branch, isn't it?"

"Less than 200 miles away. We do a lot of business with Bill. Not only in aluminum tube and shapes but in copper and copper-base alloy as well. For us dealing with Wolverine is like having two sources."

"Two sources. How do you mean?"

"Well, their Detroit plant is also one of the finest and we often order our welded steel tube there for our eastern plant."

"Say, that must save a lot of 'shopping around'."

"It does and in more ways than one. We like the completeness of Wolverine's facilities. We use a lot of tubing and they can meet our requirements. Sometimes we order plain tube; sometimes it's finned. Quite often we use their fabricated tubular parts."

"You know, Ken, Bill would get a real kick out of this. Here we are on his favorite hunting grounds talking about his favorite subjects—Wolverine and hunting."

"Terrific, isn't it. Let's be sure to tell him. Just in case he asks we better have some of those ring-neck pheasants to tell him about, too."

• • •

SURE AS SHOOTING: You can count on Wolverine Tube for the finest in copper, steel and aluminum tubing and extruded aluminum shapes. Write—right now—for your copy of the Wolverine Flow Chart. **WOLVERINE TUBE**, Division of Calumet & Hecla, Inc., 1477 Central Avenue, Detroit 9, Michigan.



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DIVISION OF CALUMET & HECLA, INC.
Manufacturers of Quality-Controlled Tubing
and Extruded Aluminum Shapes

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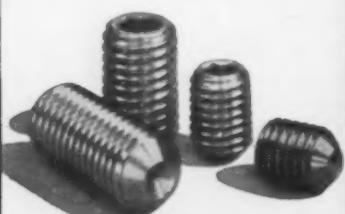


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TECHNICAL BRIEFS

SAFETY: Goggles Save Sight

Freak accident in diecasting department of Cleveland plant points up value of preparedness . . . Moisture on ladle believed to have caused explosion of molten metal.

Even the best of safety records must withstand the vagaries of the "freak" accident. The long-time safety record at the Jack & Heintz plant, Cleveland — they've racked up 8 million man-hours without a lost-time accident — squeaked through safely recently because of the protection afforded by a pair of goggles. The occasion: An explosion of molten metal in the diecasting department.

Returning to the diecasting department just after lunch, the operator put on safety gloves and goggles. When he dipped his ladle into the molten aluminum there was a sharp explosion.

Ordinarily such an explosion, the metal was at 1250°F, would send out a shower of molten metal. In this case, for no explainable reason, the explosion resulted in twin streams of molten metal which hit the operator's goggles.

The aluminum formed a solid half-inch coating on the outside of the goggles and dripped over to cover the inside of the goggle lenses. The operator suffered only a few minor burns and returned to his job.

Investigators seeking to find the

WANT MORE DATA?

You may secure additional information on any item briefed in this section by using the reply card on page 139. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

cause of the accident theorized a minute amount of moisture on the ladle caused the explosion.

Melters go through a special ritual with ladles before dipping them into molten metal. They first dip the ladle in a lime solution — this prevents metal from adhering to the ladle cup. The ladle is then dried and heated so that its temperature is close to that of the molten metal — to prevent any shock that a wide difference in temperatures would bring about.

Investigators believe some of the lime solution had not yet evaporated and that the moisture sparked the explosion.

Heating:

Billets, slabs heated
by low-frequency induction

Low-frequency induction heating may be the answer to the need for faster heating of large steel billets to forging temperature, it was reported at a recent meeting of the American Institute of Electrical Engineers at Reading, Pa.

A new field for application of induction heating has developed. C. D. Kramer of West Penn Power Co. of Pittsburgh pointed out in a paper on induction heating of steel with 60 cycle currents. The steel industry is now using these lower frequencies for heating large steel sections to forging temperatures.



Only slight burns . . .

Round or square sections larger than 10 in. across and slabs larger than 7 in. thick may be heated by 60 cycle power. It is possible to heat billets as small as 3 in. in diam by this method, but efficiency will be low. For smaller pieces higher frequencies are recommended.

Taconite:

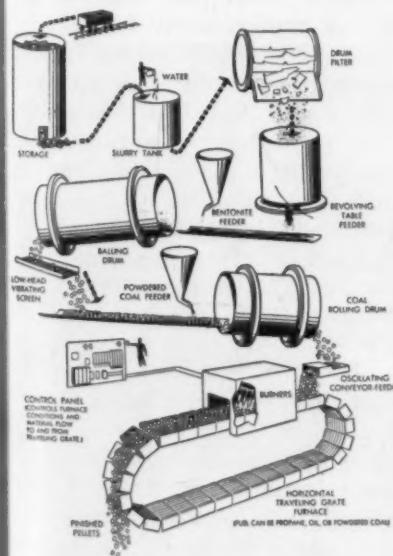
New pelletizing system
brightens taconite future.

A new method of rolling powdered taconite into blast furnace pellets will soon be used at Reserve Mining Co.'s Babbitt, Minn., plant. The new system uses a horizontal type belt furnace and will replace an earlier type which used a vertical type furnace.

Experience for building the new system was obtained from a pilot plant at Carrollsville, Wis. The equipment was engineered jointly by Allis-Chalmers Mfg. Co., Milwaukee, and The Arthur G. McKee Co., Cleveland.

Operation Is Simple

Advantages of the new process for converting powdered taconite into an ore product suitable for use in a blast furnace are said to be simplicity of operation; utilization of heat recovered from the operation; ease of quality-control; direct and simple discharge from the equipment; minimizing of pellet breakage.



Setup at pilot plant . . .

October 7, 1954

Information Here

"HOW TO LOWER YOUR COSTS" can have as many answers as there are departments and employees in your plant. A good first move is to know the equipment available which could raise manufacturing efficiency, cut unit production costs and work for greater employee contentment.



EVERY PLANT EXECUTIVE should have this complete informative CM Catalog at his fingertips. Your copy sent on request.



CM METEOR

½ to 5 ton capacities. Fast, low headroom heavy duty wire rope electric hoist. Single and two speed models. Many exclusive features.



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**Bonding agent added to
reduce pellet breakage . . .**

The new process uses a horizontal furnace, approximately 190 to 200 ft long, through which moves a 6-ft wide traveling grate loaded with pellets, plus auxiliary equipment for ball-making or pelletizing.

Concentrates Fed to Drums

Ball-making consists of continuously feeding concentrate into large drums rotating at a predetermined speed. The balls formed in the drums are approximately $\frac{3}{8}$ to $\frac{5}{8}$ -in. in size and contain about 10 pct moisture and the required amount of powdered anthracite coal for burning.

Concentrated taconite is shipped from the iron range to the pilot plant by rail. A grab bucket crane unloads the taconite, dropping it through a roof hatch into a holding tank. The concentrates are manually removed from the bottom of the tank across a scraper apron and onto a belt conveyor feeding the repulping tank.

Water Added to Form Slurry

In this tank a metered amount of make-up water is added to form a slurry. Two impellers agitate the slurry, which is then pumped by a rubber lined solids handling pump to a drum filter. An overflow returns any excess slurry back to the repulping tank.

The drum filter removes excess moisture from the concentrate, leaving approximately 10 pct.

The filter cake drops onto a belt conveyor which takes it up to a table feeder, which in turn passes it onto a belt conveyor to the pelletizing drum. A small vibrating feeder mounted over this belt meters additives to the concentrate. The additive is a bonding agent that reduces the possibility of breakage in the pellets, or balls.

Rerun Undersize Pellets

The pelletizing or balling drum is an open drum set at a slight angle and continuously revolving. Concentrates enter at the higher end and pellets are discharged at the lower end. Acceptable pellets are approximately $\frac{1}{2}$ in. in diam.

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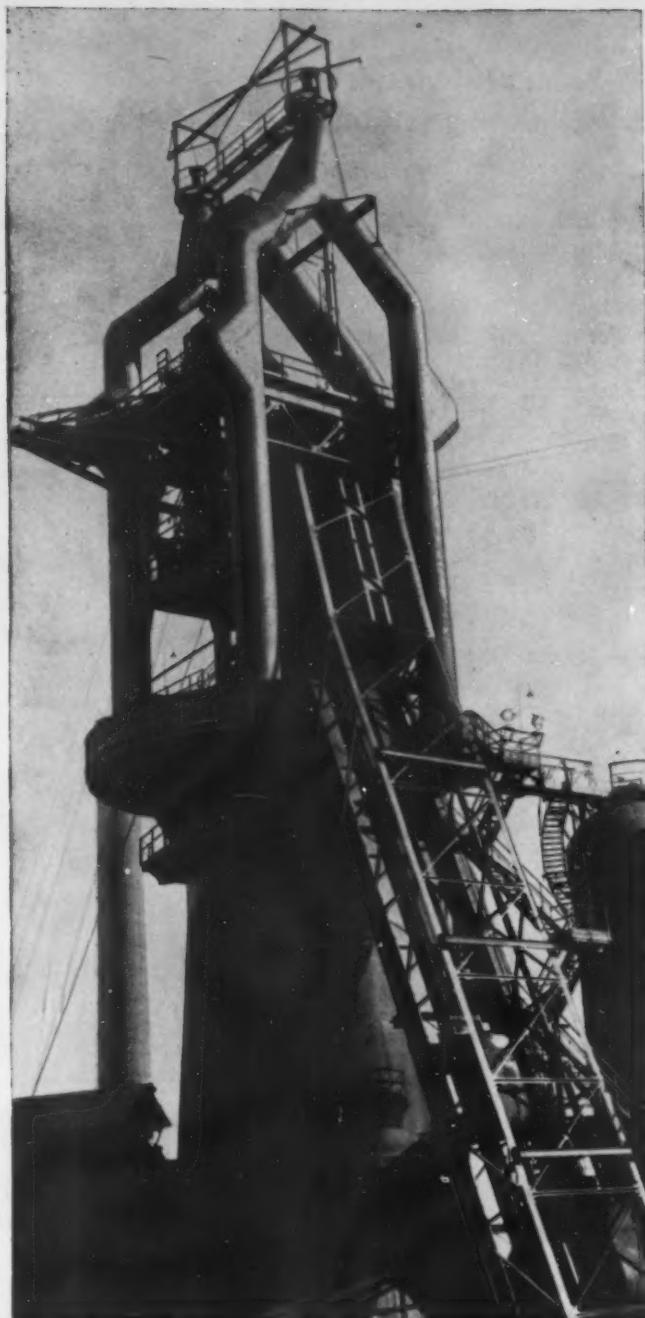
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MORE USED THAN ANY OTHER MERCHANT PIG IRON

This is the new and larger Federal "A" furnace in the Chicago district—62% increase in capacity over the old furnace. Productive capacity has been increased also at both Toledo and Erie.



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Pellets dried, hardened in sintering furnace . . .

Those which do not meet size requirements are returned to the balling drum to be used as seed pellets. All pellets are discharged onto a vibrating screen located under the drum discharge. The

undersize pellets fall through onto a conveyor belt. Correct size pellets pass across the screen to a conveyor. This passes under a metering coal-feed device which feeds the coal rerolling drum.

Coal Added for Burning

Powdered coal is added to the pellets on the conveyor. In the

coal reroll drum powdered coal is rolled into the surface of the pellets. The pellets are next conveyed onto the traveling grate of the heat-hardening furnace. An oscillating conveyor deposits an even layer of pellets across the full width and depth of the grate pellets.

The grate is a continuous operating machine, generally known as the sintering type. This particular one has certain furnace and windbox modifications built into it.

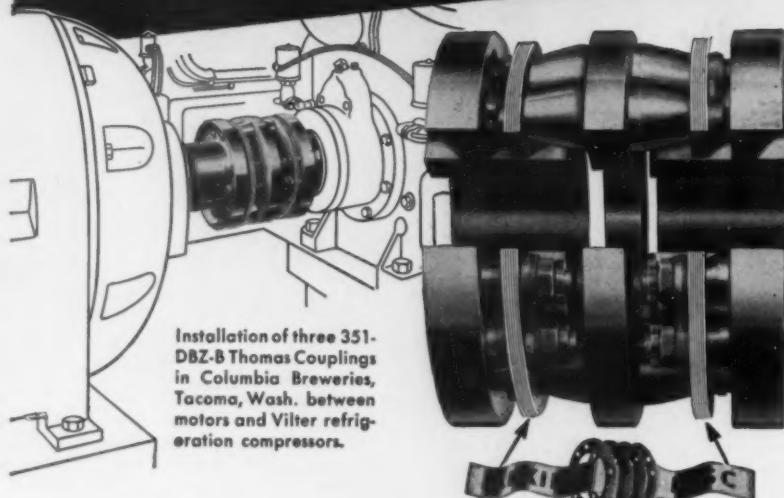
Pellets Dried and Hardened

Purpose of the sintering machine is to dry and harden the pellets by heat. The first phase is predrying, which is accomplished by an up-draft of hot gases passing through the entire bed of pellets. These hot gases come from the discharge end of the grate where the pellets that are already burned are cooled by air passing down through the pellet bed.

Burns Uniformly

From the predrying phase the grate passes under a three-compartment furnace. The first compartment, for down draft drying, uses hot gases from the recuperation wind box for this purpose. The second compartment is used for preheating the pellets, and additional heat from a second burner supplements the temperature.

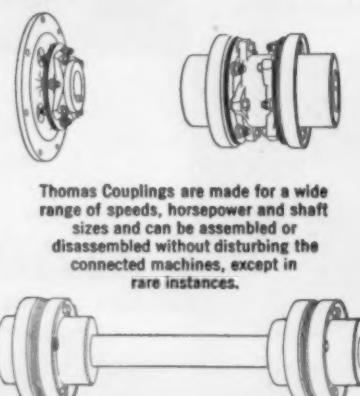
THOMAS FLEXIBLE COUPLINGS... for more years of better service!



Installation of three 351-DBZ-B Thomas Couplings in Columbia Breweries, Tacoma, Wash. between motors and Vilter refrigeration compressors.

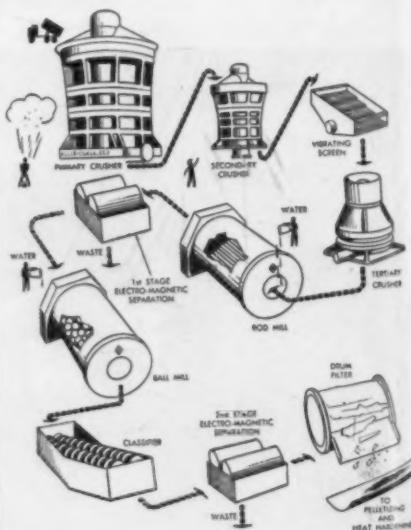
Patented Flexible Disc Rings of special steel transmit the power and provide for parallel and angular misalignment as well as free end float.

DISTINCTIVE ADVANTAGES	
FACTS	EXPLANATION
NO MAINTENANCE	Requires No Attention. Visual Inspection While Operating.
NO LUBRICATION	No Wearing Parts. Freedom from Shut-downs.
NO BACKLASH	No Loose Parts. All Parts Solidly Bolted.
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PERMANENT TORSIONAL CHARACTERISTICS	Drives Like a Solid Coupling. Elastic Constant Does Not Change. Original Balance is Maintained.



Write for our new Engineering Catalog No. 51A

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Largest Exclusive Coupling Manufacturer in the World
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Taconite concentration . . .

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Just as a **PORCUPINE** needs protection . . .
IRON and STEEL Need **PROTECTION**

If your product is made of iron or steel, and exposed to the elements, protect it against the ravages of rust by Hot-Dip Galvanizing — the best possible rust preventive when applied by Hanlon-Gregory. For longer life, greater uninterrupted service and substantial savings in maintenance, specify Hot-Dip Galvanizing . . . **SEAL IT IN ZINC.**

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The World's largest Job Galvanizing Plant



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ignition chamber and incorporates a burner for increasing the temperature to 2300-2400°F, which ignites the top layer of pellets. This burning zone progresses uniformly down through the pellet bed, with burn-through taking place as the pellets reach the recuperation wind box. The ignition wind box gases are exhausted to atmosphere.

After passing over the wind box the pellets pass over the cooling wind box and are then discharged through a grizzly deck onto a wire belt conveyor.

In step with the expected production increase from the new pelletizing system, one of the largest gyratory crushers ever built will be added to the facilities at the Babbitt, Minn., plant of Reserve Mining Co. The unit will be shipped from Allis-Chalmers Mfg. Co. this year.

The unit will be capable of crushing over 3500 tons of taconite per hour, from pieces as large as 5 ft on one dimension down to 10 in. in size. Total weight of the crusher is 822,300 lb.

New Books:

Management Series—The following stenographic briefs are a part of 20 to 30 executive papers published each year by the California Personnel Management Association in a management reports series.

"Gearing Company Relations to the Community" by T. R. Reid.

"Whose Job IS Human Relations?" by F. J. Bell.

"New Horizons and New Problems in Executive Training" by E. T. Grether.

"The New Climate in Strikes and Labor - Management Disputes" by V. W. Kenaston and G. A. Bowers.

"The Company President Looks at the Personnel Department" by R. E. Gay.

"Developing Trends in Labor Relations" by R. C. Siciliano.

"Medical Aspects in Management Development" by H. W. Wilkinson.

"How Responsible Can Management Be?" by A. R. Heron.

Copies may be obtained from the California Personnel Management Assn., Research Div., Farm Credit Bldg., 2180 Milvia St., Berkeley 4, California. \$1.00 each.

"Symposium on Fluorescent X-Ray Spectrographic Analysis" presented by the American Society for Testing Materials at their fifty-sixth annual meeting. Pictures, graphs, charts, tables and schematic diagrams are used in this technical publication. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. \$1.75. 72 p.

"International Bibliography of Prefabricated Housing" by P. M. Kelly and Caroline Shillaber. Bibliography indicates the range of literature available in different languages for countries which produce or make use of prefabricated housing. Bibliography covers the period 1948 to June, 1954, and a list of prefabricating firms in various countries is given. The Albert Farwell Bemis Foundation, Massachusetts Institute of Technology, Cambridge, Massachusetts. \$1.00. 85 p.



Flame-proof PEEL FILMITE snuffs out flame... ordinary plastic booth coating supports it

PHOTOGRAPHIC PROOF THAT PEEL FILMITE IS SAFE FOR PAINT SPRAY BOOTH MAINTENANCE. Here's a true and dramatic flame test—visual demonstration in safety for paint spray booth operation. While ordinary plastic coat sealer bursts into dangerous flame, DuBois' new Flame-Proof PEEL FILMITE simply snuffs out the lighted match. Here's an important safety factor, a complement to PEEL FILMITE's smooth, opaque white coating... its ease of spraying on... ease of peeling off... plus the man hours saved in booth clean-up. Write for descriptive folder. Learn how to save "good hard dollars" on spray booth maintenance.

SPRAY ON. PEEL FILMITE sprays on evenly, forms a smooth, white opaque coating that dries quickly. Non-greasy surface reflects light, resists gasoline, alcohol, fats, acids, alkalies.

PEEL OFF. Peels off in sheets like the skin of a tangerine. *Spray booths are actually cleaned in minutes, not hours.* PEEL FILMITE eliminates messy hand scraping.



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It uniformly controls surface hardening of gear teeth

You can step up the wear resistance of gear teeth greatly with Gleason Surface Hardeners. They provide localized hardening *without distortion* because of uniform temperature control.

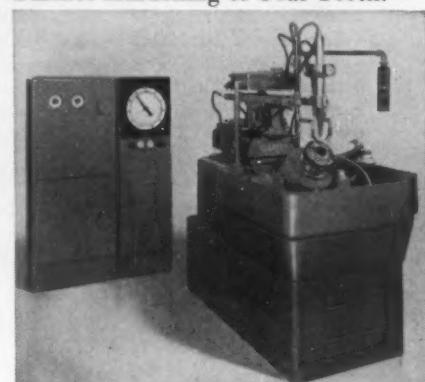
Key to this performance is the radiation pyrometer and electronic controls. That vertical gun-like barrel in the center of the photo above is the radiation pyrometer. It is focusing directly on the tooth being hardened. As the oxy-acetylene burners heat the tooth, the thermopile receives radiant energy from the heated metal. An electronic balancing device converts

that energy to control forces which govern the travel of the burners along the tooth.

This makes surface hardening of gear teeth an exact operation. There is no measurable distortion because only the gear teeth are heated and each tooth is heated uniformly on both sides. The region of hardness is limited to the wearing surfaces, thus greatly increasing gear life.

Gleason Surface Hardeners assure absolute uniformity of all teeth on a gear and every gear in a lot. They are adaptable to hardening straight bevel,

spiral bevel, Zerol® spur, herringbone and helical gears. For additional information, write for the booklet "The Surface Hardening of Gear Teeth."



No. 1 Gleason Gear Surface Hardener with electronic control unit. Accommodates bevel gears up to 24" pitch diameter, spur and helical gears up to 30", internal gears up to 24" outside diameter.



GLEASON WORKS

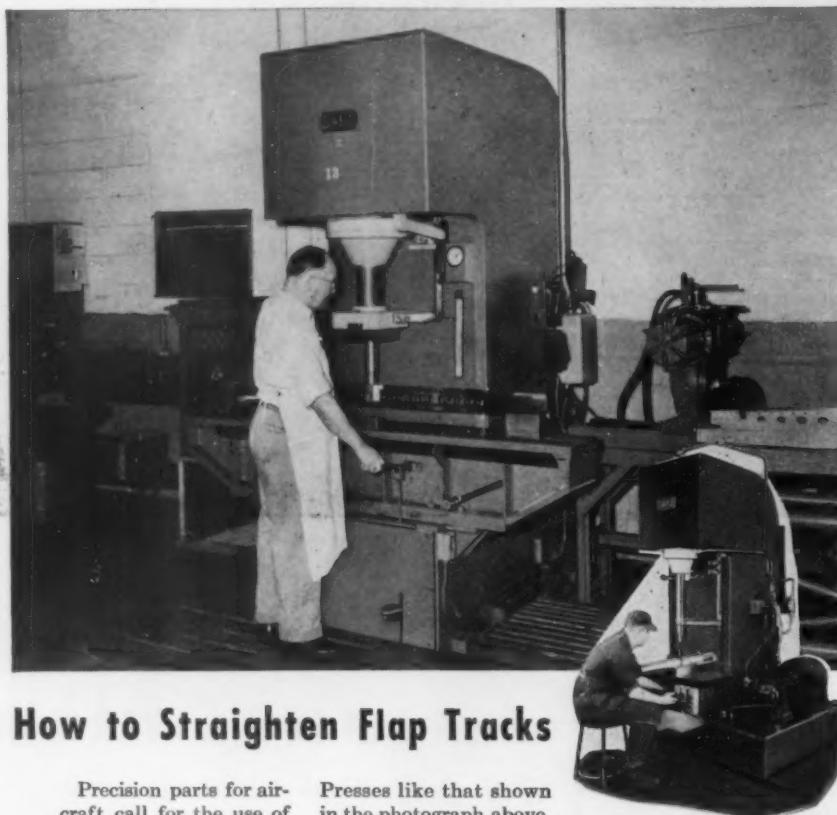
Builders of bevel gear machinery for over 85 years

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See these machines in Booth 454 AT THE NATIONAL METAL EXPOSITION, Chicago, November 1-5, 1954

"Standards and Typical Specifications for Deaerators and Deaerating Heaters," third edition, aims to help the purchaser of deaerators and deaerating heaters by defining terms and establishing standards of capacity, performance, and construction. Heat Exchange Institute, 122 East 42nd Street, New York 17, New York. \$1.00. 11 p.

"1948-1949 Bibliographic Survey of Corrosion" is a compilation of 3500 abstracts from some 500 periodicals and books by over 30 abstracting agencies. This is third in a series of NACE bibliographies on corrosion literature. National Association of Corrosion Engineers, 1061 M & M Building, Houston 2, Texas. \$12.50. 346 p.



How to Straighten Flap Tracks

Precision parts for aircraft call for the use of precision equipment.

These flap tracks, machined from 4130 steel (aircraft quality), must be checked on a straightening press four times during fabrication. For ease of control and accuracy, the work is done on Dake Gap Type

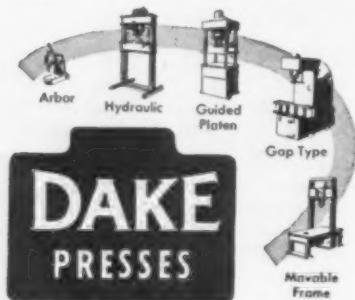
Presses like that shown in the photograph above.

To the right of the ram, the operator has placed a rule gauge which indicates ram travel. Knowing the elasticity of the piece being tested, he can estimate the overtravel necessary to straighten the piece with a single movement of the ram.

Dake Gap Type Press broaches boring bars

Dake Gap Type Presses are available for straightening or forcing, in 22 models ranging up to 300 tons capacity. They are fully described in Bulletin No. 299—sent on request.

Dake Engine Company, 602 Seventh St., Grand Haven, Mich.

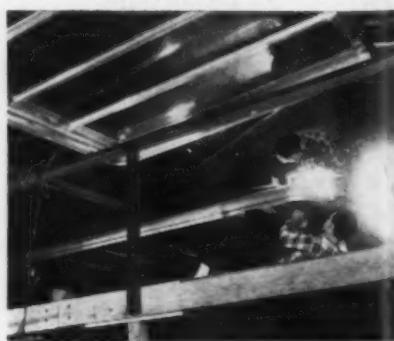


Send for Big New Catalog

DAKE ENGINE COMPANY
602 Seventh St., Grand Haven, Mich.

Please send me a copy of Dake Catalog No. 129

Name _____
Company _____
Address _____
City _____ Zone _____ State _____



Assembling the roof . . .

Fabrication:

Standard parts speed production of aluminum truck bodies.

Aluminum truck bodies are being made to customer specifications with the speed and efficiency of production line methods at the truck body plant of Duralite Mfg. Co., Ridgely, Md. Speed with which bodies are made depends largely on the use of standard warehouse aluminum materials and parts plus the use of standard assembly methods.

Bodies vary from 102 to 126 in. in length and may have up to eight doors. Fewer assembly operations and components are required because of the extensive use of aluminum extrusions.

Requirements Simplified

An indication of efficiency at Duralite is the "one page engineering" involved on each of its standard tailor-made bodies. Methods have been standardized so that all the customer's requirements for production are specified on a single sheet of paper.

Production is organized in a definite production line sequence. Roofs, sides, front, back, doors and floor are assembled separately then joined together in a production line. Completed bodies arrive at the exit to the shop ready for installation on the customer's chassis.

Regular Warehouse Stock Used

Production for the average truck body starts with the roof assembly. One Alcoa standard extruded aluminum roof rail roof bow section

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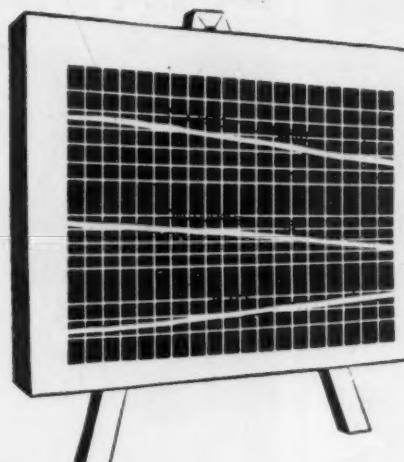
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section

When you see this new...

CODE OF ETHICS SEAL



...you know input and output ratings
are accurate and dependable!



Here's a new symbol you'll be seeing on industrial gas equipment. It's your assurance of specific quality standards, including accuracy and dependability of input-output ratings assigned by the manufacturer. You can be sure these ratings are based on sound engineering experience — reliable guides for selecting equipment to do your job! So place your confidence in the "Code of Ethics" Signer's Seal!

INDUSTRIAL GAS EQUIPMENT DIVISION
G. A. M. A.

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SEND COUPON for complimentary copy . . .
new booklet, "Code of Ethics"

Industrial Gas Equipment Division, G.A.M.A.
60 East 42nd Street, New York 17, N. Y.

Gentlemen: Please send me a free copy of your
"Code of Ethics" and list of signers.

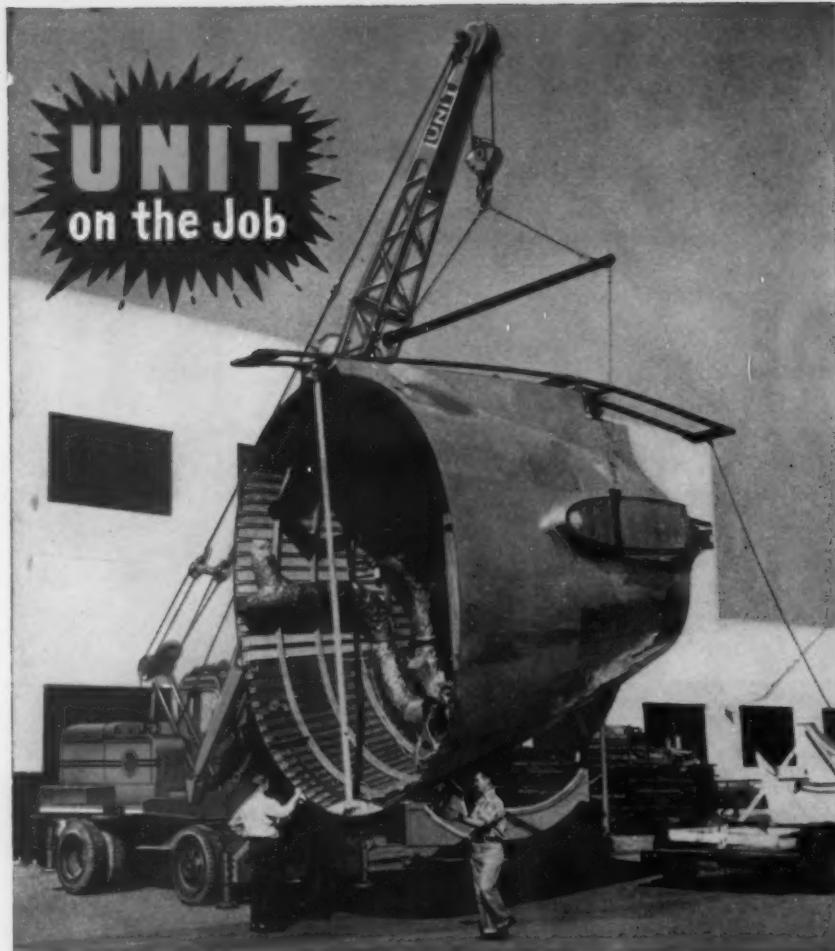
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Company Name _____

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City _____ State _____

TECHNICAL BRIEFS



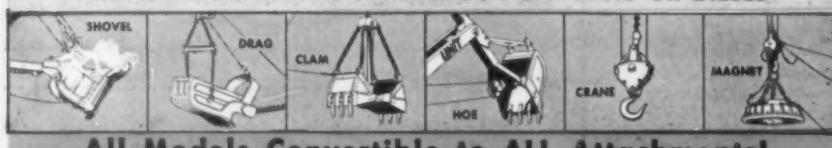
picking up a "stub" the easy way

Typical of the powerful "pick-up" ability of UNIT Cranes is the above performance . . . loading a giant aerial "fish" or tail-stub assembly onto a truck trailer. Inside this huge stub, two jet-like gasoline heaters will be installed, with heating capacity comparable to that required to heat 12 six-room homes! UNIT torque drive provides full, steady, nonstalling power . . . greater lug-
ging power . . . elimination of shock loads on machinery. It will pay you to investigate these and other UNIT ad-
vantages. Write for Bulletin L-302.

UNIT CRANE & SHOVEL CORP.
6517 West Burnham Street • Milwaukee 14, Wisconsin



1/2 or 3/4 YARD EXCAVATORS... CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL



357 **Mobile UNIT**
the ONE-engine,
ONE-man Unit
. . . self-propelled,
travels anywhere,
rides on rubber, quickly
convertible,
fast, reliable.

with cast corner, and aluminum sheet completes the bill of materials.

Use Standard Materials

Roof rail sections are purchased from the warehouse in standard lengths and are joined with standard aluminum castings. The bows are fitted in slots in the roof rail, and aluminum sheet is riveted on to complete the roof.

Roof bows are formed at each end to allow their top surface to



Floor plate set on frame...



Assemble side panel in jig...



Final assembly starts . . .

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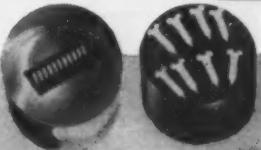


NEW BUEHLER CATALOG

200 pages — a comprehensive catalogue of Buehler equipment for the metallurgical laboratory. Includes sections on Cutters, Grinders, Specimen Mount Presses, Polishers, Metallographs, Microscopes, Cameras, Testing Machines, Spectrographs, Furnaces and other equipment for the metallurgical laboratory.

Buehler Ltd.

METALLURGICAL APPARATUS
2120 Greenwood Avenue, Evanston, Illinois



**Our men are
experts...**

SERVICE FOUNDRY

Every man at Service knows his job... from the speed and efficiency of the office force, to the skill, care and precision of the metal workers. Expert metallurgical control, skilled pattern making, and all-around top quality workmanship have made the name, Service Foundry, famed throughout industry.



IRON, STEEL, NON-FERROUS CASTING • GEAR CUTTING • MACHINE WORK

SERVICE FOUNDRY — a division of AVONDALE MARINE WAYS, Inc.

416 Erato Street, New Orleans, U. S. A.

P. O. Box 1030, New Orleans, U. S. A.

Production standardization cuts assembly costs ...

be flush with the top of the roof rail, resulting in a smooth roof when the sheet is riveted on. Roof bows are on 24 in. centers. Sheet is 48 in. wide and is riveted to alternate bows. A few rivets are used in the bows at the center of the sheet to prevent drumming.

Production standardization is also applied to the side assembly.

An exposed post or outside panel body can be built using the same basic method. Extruded side posts are first punched on a hydraulic punch unit to provide holes for rivets and to serve as a drill jib for drilling rivet holes in the aluminum sheet on the sides.

Sheet and side posts are assembled in a fixture and rivet holes are hand drilled through the punched holes on the side posts. Riveting completes the subassembly.

The end sections, where no

doors are involved, are assembled in the same manner as the sides.

The floor assembly is completed before the body sections are put together. Treadplate or flat plate is used except when other floor materials are requested. The floor support beams are made of pressed steel.

Coating:

Plastic film protects sheet from die marks.

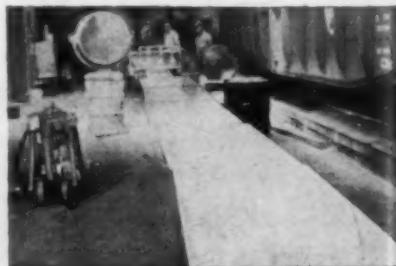
Die marks and handling scratches, long a problem where aluminum sheet is fabricated, have been practically eliminated at Ideco Div. of Dresser-Stacey Co. through the use of strippable plastic film.

Aluminum sheet is fabricated into deep-rib siding at Ideco for use on the Aluminum Co. of America's new color-anodized aircraft hangar at Allegheny County Airport at Pittsburgh. Use of this material in a hangar structure is designed to provide a permanent, attractive structure requiring no painting or other maintenance.

Can Be Quickly Removed

The plastic film, Peetcot MC, was developed to protect all types of metals during forming, handling, storage and shipping operations. It is intended for use where sheetmetal must be handled carefully to protect finish, as in the appliance, aircraft and auto industries.

The material, available in spray, dip or brush consistencies, provides a clear, strippable plastic film coating. The coating has good abrasion resistance and can be stripped off quickly in long continuous sheets.

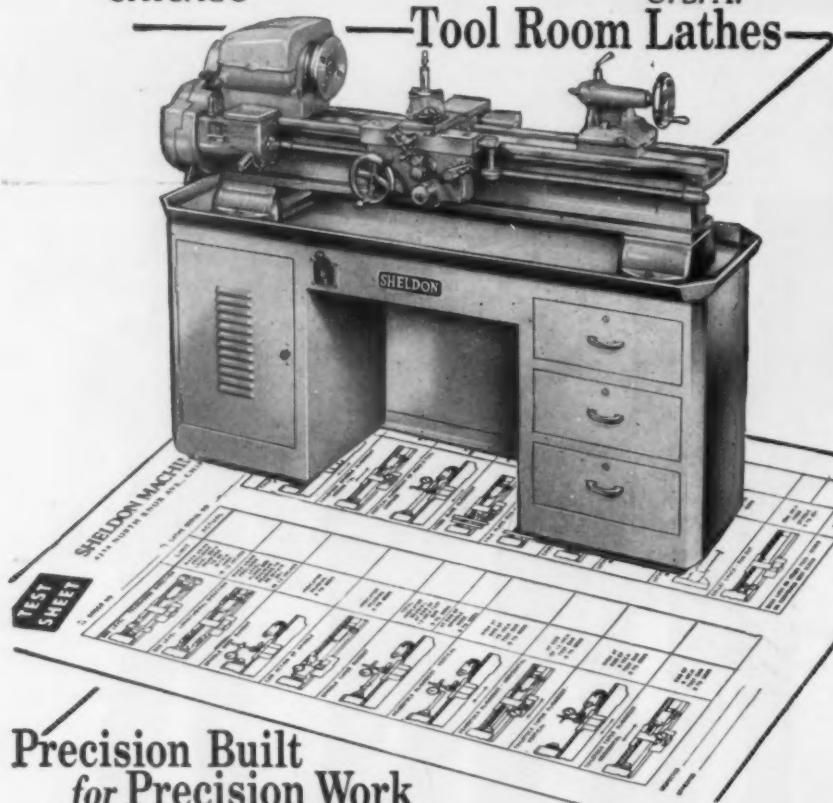


Coating is sprayed on ...

SHELDON

CHICAGO U. S. A.

Tool Room Lathes



Precision Built for Precision Work

Each SHELDON Lathe is a precision machine tool that in final inspection has passed the 19 accuracy checks on the SHELDON "Inspection Test Sheet."

Produced by modern

Write for Catalog with Check Chart

SHELDON MACHINE CO., INC.

4224 North Knox Ave.,
Chicago 41, Illinois

methods with the finest special machines, these 10", 11" and 12" (swings 13") lathes are quality built on a quantity production basis. Selling at quantity production prices they are today's best lathe values.

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NOW!!

CESIUM RADIOGRAPHY SOURCES

33-Year Half Life...Very Low Cost...Increased Contrast...Lighter and Less Expensive Containers

Tracerlab has reduced prices of its Cesium-137 sources up to 70%, because the AEC has reduced its cost, we are now buying in quantity, and are encapsulating popular sized sources for stock. Cesium is being increasingly used for radiography because of its lower energy radiation (0.60 MEV), which makes it ideal for thin steel sections and less dense metals such as aluminum, because better contrast is obtained. Additional advantages are its long life and the use of lighter shipping containers. 1 Curie source (3/16" x 1/8" active dimensions) only \$275.00.

Complete costs
and delivery
information on
all sources
on request.

Tracerlab

130 HIGH ST. BOSTON
2030 WRIGHT AVE. RICHMOND, CAL.

Stonehouse SIGNS FOR INDUSTRIAL ACCIDENT PREVENTION

DANGER
HIGH VOLTAGE

NOTICE
THIS GATE MUST BE
CLOSED BEFORE THE
ELEVATOR CAN BE
OPERATED

ALL HANDS
HELP
KEEP THIS AREA
SAFE
AND CLEAN

A FIRE
MIGHT PUT EVERY
ONE OUT OF WORK
HELP YOURSELF
PROTECT YOUR JOB
AND SHIRKING

FIRE EXIT

CAUTION
KEEP BUS
FROM UNDER
CRANE LOADS

"Signs Since 1863"



CAUTION
CLEAR-OUT-REPAIR
AND-REPAIR
WHILE IN MOTION

THINK
THE BEST
SAFETY EQUIPMENT
IS A SAFETY MIND
GET THE SAFETY MIND

DANGER
WEAR GOGGLES
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SAFETY
FIRST
NO SMOKING

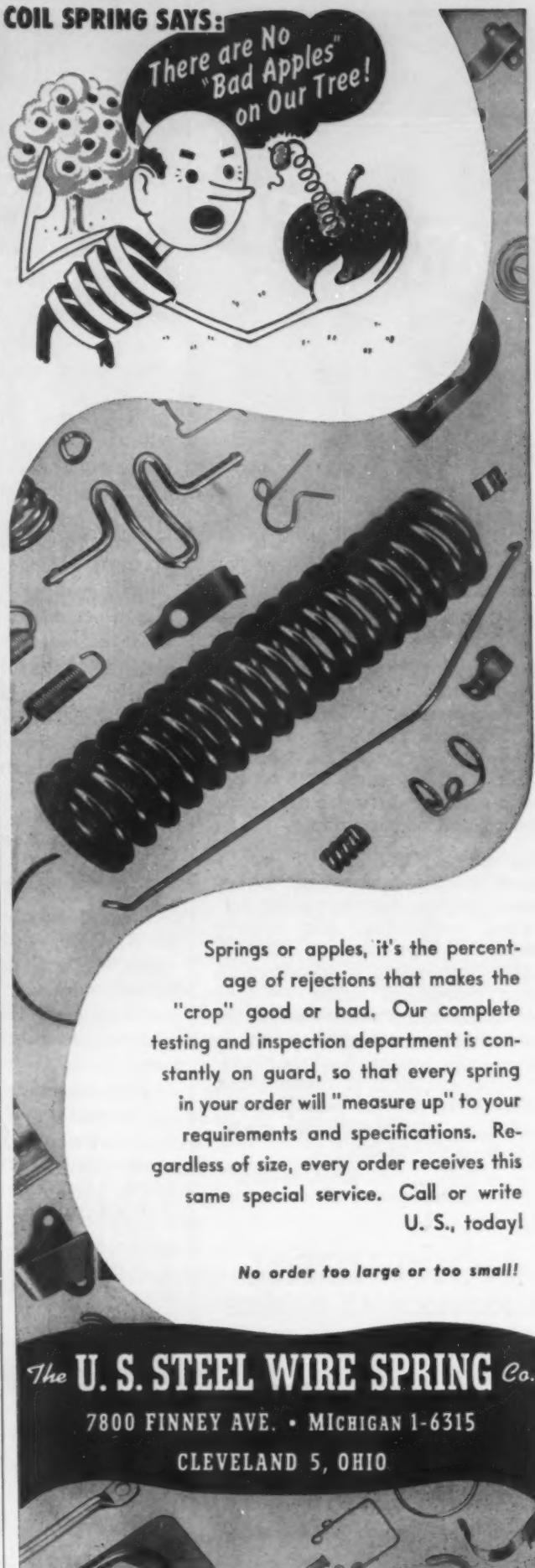
DANGER
WATCH
YOUR STEP

THINK
A FIRE TODAY
NO JOB
TO MORROW

Complete Catalog
...free on request!

STONEHOUSE SIGNS INC. Manufacturers - 9th at LARIMER - DENVER 4, COLOR.

COIL SPRING SAYS:



Springs or apples, it's the percentage of rejections that makes the "crop" good or bad. Our complete testing and inspection department is constantly on guard, so that every spring in your order will "measure up" to your requirements and specifications. Regardless of size, every order receives this same special service. Call or write U. S., today!

No order too large or too small!

The U. S. STEEL WIRE SPRING Co.
7800 FINNEY AVE. • MICHIGAN 1-6315
CLEVELAND 5, OHIO



**Look Overhead...
See "NORTHERN"**

"NORTHERN" — the name you see on overhead electric cranes in industrial plants of all kinds wherever you may be, because NORTHERN — since 1899 — has been a leader in industrial crane design and construction.

The name "NORTHERN" represents faithful adherence to uncompromising design, quality controlled machining, and closely inspected fabrication. "NORTHERN" Cranes and Hoists have an extra margin of safety — give dependable, fast service under the most rugged, emergency conditions — are notable for fine, standard-type electrical equipment and controls for precise manipulation and quick, easy maintenance with minimum downtime.

Let us send you Crane Bulletin SE-108-A
Hoist Bulletin H-112

**NORTHERN
ENGINEERING WORKS**

210 CHENE STREET
DETROIT 7, MICHIGAN



Permits good bonds . . .

MATERIALS ROUNDUP

SILICONE: Beefs Up Rubber

New silicone polymer, blended with rubber, increases resistance to weathering . . . Improves stability of oil resistant rubbers in contact with hot oil . . . Brittle points at —70° F.

A new silicone polymer can be compounded with silicone or organic rubber to increase resistance to weathering. It can be blended with or used as a coating for organic rubber.

Identified as Dow Corning 410 Gum and manufactured by Dow Corning Corp., Midland, Mich., the material polymer can be blended with or applied as a protective coating to extend the serviceable temperature limits and the weather resistance of organic rubbers.

Brittle points as low as —70° F and usefulness up to 400° F can be realized by proper blending. The physical properties of the blend extends between those of high strength silicone rubber and the organic rubber constituent.

Increases Oil Resistance

Blended with oil resistant rubbers the silicone increases the stability of these materials when in contact with hot oil. Such blending also improves the ozone and weather resistance of organic rubber.

Tested in an atmosphere of ozone, for example, a Buna N type rubber, compounded for test purposes, showed failure cracks in less than 30 min. Under the same conditions, a fifty-fifty blend of the same or-

**FOR MORE DATA
ON MATERIALS**

More information on any item reported in this section may be obtained by using the reply card on page 139. Indicate the page on which the item appears and note exactly the information wanted.

ganic elastomer and the new silicone showed no cracks after more than 8 hours.

Aluminum:

**Seven nations agree on
basic standard of resistance.**

A basic international standard of resistance for aluminum, corresponding to the resistivity of very high purity aluminum, was agreed upon recently by the delegates from seven countries. They met at the recent Fiftieth Anniversary of the International Electrotechnical Commission in Philadelphia. The basic value of resistance agreed upon by Canada, France, Germany, India, Sweden, United Kingdom and the USA is 1/37 (equals 0.027027) ohm mm sq per meter.

Wire, Bus Conductors

A value for resistivity of hard-drawn aluminum wire was also tentatively approved. This is to be 0.028264 ohm mm sq per meter as the maximum resistivity. This value will be tried for 6 months before final approval is given.

Maximum resistivity value for aluminum bus conductors was set at 0.0290 ohm mm sq per meter. The committee also agreed on the basic standard mechanical values



for galvanized steel wire for use in the cores of aluminum conductors, steel reinforced.

On the basis of agreements reached, the Canadian Secretariat for the committee will prepare specifications which will be circulated to the national committees of the 30 countries that are members of the International Electrotechnical Commission.

Cutting Fluid:

Helps solve some problems in machining bronzes.

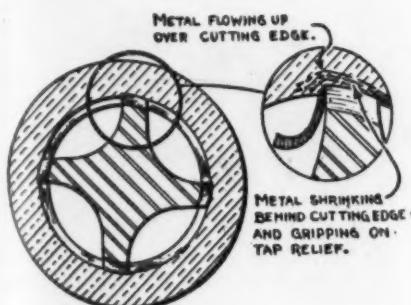
Because of tough antifriction properties, machining and tapping of bronzes is usually difficult. These antifriction properties often result in poor cutting and are factors in tool breakage.

To meet these problems, engineers have recently developed a cutting fluid which aims at freeing the cutting action of tools on the metal and eliminating seizure on tap relief. The fluid, Bronze-Cut No. 10, was developed by Prim Products Co. of Rockford, Ill.

Torque Reduced 17 Pct

Tapping and cutting torques are reduced 17 pct, engineers report, basing their claims on machining tests. In tapping, a cleaner tapped hole that will gage to size, and reduced tap breakage, are claimed.

High surface tension of the cutting fluid causes it to cling to the tap and to the work. This property helps keep the fluid in place until its work has been accomplished. In most cases the 17 pct reduction in torque reported is more than enough to solve tough tapping problems.

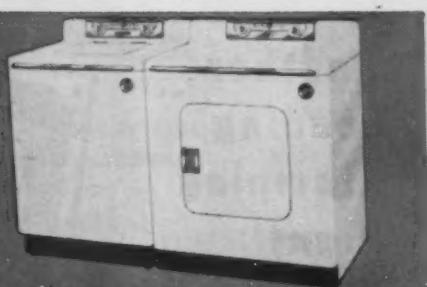


How bronze cuts . . .

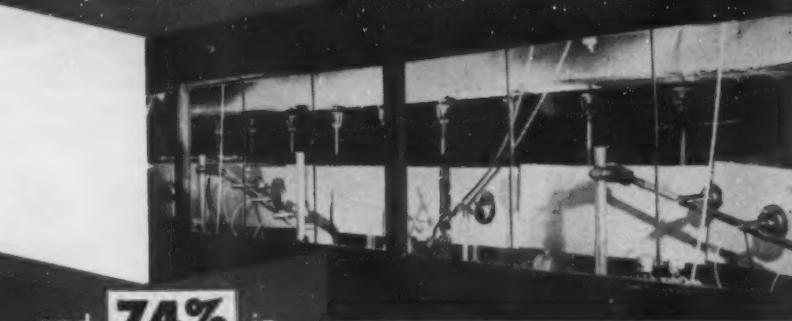
with the
RANSBURG
NO. 2 PROCESS
Paint mileage jumps

84%

in the finishing of
G-E AUTOMATIC WASHERS



... and **74%** in
finishing **G-E DRYERS**



Production is increased and quality of the work is improved over former hand spray method

● When General Electric formerly hand sprayed their home laundry equipment—automatic washers and dryers—they painted 9.74 washers with a gallon of paint. Now, in the new and modern plant at Appliance Park, Louisville—where they're using the Ransburg No. 2 Process—they get 17.97 units per gallon of paint. An increase of 84%!

And, where they formerly got 5.49 dryers per mixed gallon of finish, now—with the Ransburg No. 2 Electrostatic Spray Process—they get 9.56 dryers per gallon of paint. An increase of 74%!

Along with increased production, G.E. is getting a more uniform, higher quality finish. Another typical, on-the-job-example of the unmatched efficiencies of the Ransburg No. 2 Process of electrostatic spray painting!

Want to know what Ransburg Electrostatic Processes can do for you in your finishing department? Ask about the complete facilities for test-painting YOUR products—under simulated production conditions—in Ransburg laboratories.

Ransburg
ELECTRO-COATING CORP.

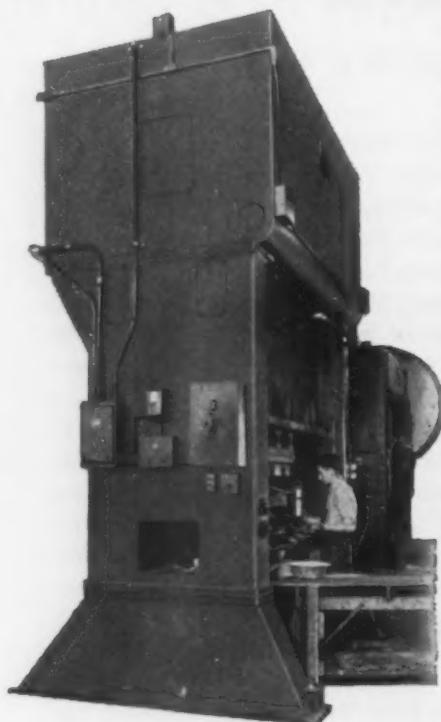
Indianapolis 7, Indiana



Another
Leading
Stamping
Plant
Uses-----



**RYERSON-HAYNES Selects WARCO LINE
on Performance Records . . .**



Ryerson-Haynes of Jackson, Michigan, a large automotive stamping concern, recently built a new addition and added a large group of WARCO Presses, because they knew from past experience they could depend on Warco to deliver highest production at low maintenance cost.

People who have WARCO Presses working in their plants find, upon checking maintenance records and press operators' opinions, that WARCO Presses are out in front when it comes to low cost production and operator preference. If you're not now using WARCOs, contact our local representative and he will refer you to a user in your area — for he knows that where users compare, where performance at low cost is a factor, WARCO is your best buy.

THE FEDERAL MACHINE & WELDER COMPANY

WARREN, OHIO



Welding:

Magnetic flux speeds deposition of metal in welding.

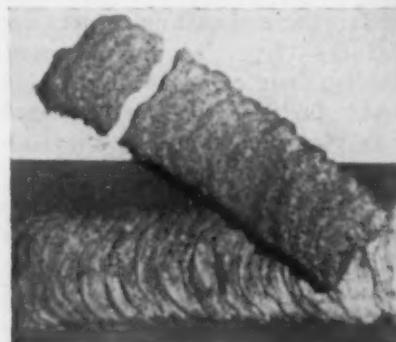
Deposition rates of up to 14 lb of metal per hour are possible using an improved granular magnetic alloy flux which coats the bare wire electrode as it emerges from the feeding device.

The magnetic flux, suitable for buildup and hard facing operations, may be used with all semi-automatic welders if proper hopper adapters are used. The flux and hoppers, Magnecote, were developed by the Stoeby Co. of Whittier, Calif.

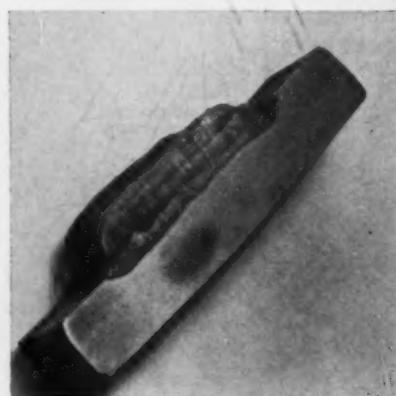
Slag Easily Removed

Under proper operating conditions the deposits are uniform, sound and free of porosity. While most welding with the magnetic flux may be done in the 225 to 350 amperage range, a full 400 amp is recommended.

Multiple passes may be made without difficulty. Slag coating tends to raise as the work cools and removal offers no difficulty.



Slag lifts off . . .



Three-pass deposit . . .

NEW EQUIPMENT

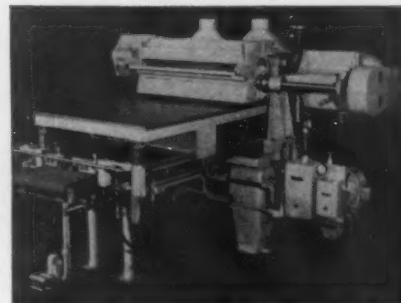
New and improved production ideas, equipment, services and methods described here offer production economies... for more data use the free postcard on page 139 or 140

Finishing machine processes nonmagnetic items

Heavy-duty finishing machine with a vacuum chuck provides greater capacity than an earlier model in the surface finishing of automobile trim and name plates for refrigerators, stoves and other appliances. It is recommended for processing items made of brass, copper, silver, plastic, aluminum, wood and other

non-magnetic materials. Electrical control circuits offer a choice of automatic or semi-automatic cyclic actuators. Floating buff will follow curvature of work at preset contact pressure. Failure of negative pneumatic chucking pressure stops machine. *Clair Mfg. Co.*

For more data circle No. 31 on postcard, p. 139.



Adjustable bore gages eliminate need for plug gages
Simplification and cost reduction of bore gaging are claimed for new fully adjustable bore gages. The bore gage consists of a light pencil-size handle connected by adapters to fixed adjustable torus-design gages at each end. One gage is set to *go*, the other to *no-go* dimension. A single micrometer-type adjusting screw and a lock screw that

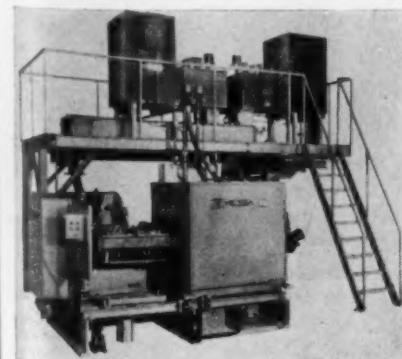
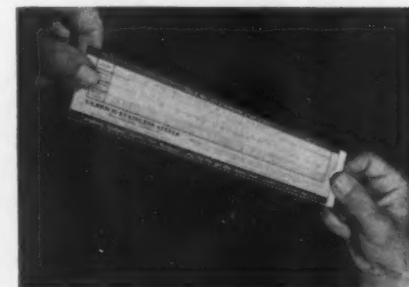
For more data circle No. 32 on postcard, p. 139.

Handy calculator for buyers of stainless strip

A slide type calculator for stainless steel buyers facilitates quick and easy calculation on purchases of stainless steel strip. It uses as variables the length and weight of cold rolled stainless steel strip and quickly translates into pounds any length and width of stainless steel

according to its gage. The calculator indicates widths from $\frac{1}{8}$ to 12 in., length from 100 to 10,000 ft, and gages from 0.003 through 0.150. On reverse side is a slide table to determine weight of stainless coil steel. *Ulbrich Stainless Steels.*

For more data circle No. 33 on postcard, p. 139.



Shell molding machine rated at 40 shells per hour

Operation of a new single-station shell molding machine is completely automatic from sand blending and supply through pattern immersion and curing in the automatically controlled gas-fired oven. The machine is built for continuous, high-production operation. It is electrically driven throughout, except for air operated dump box latch and the stripper unit, with extreme

flexibility built in. Timing for pattern pre-heat, dwell time, and cure can be controlled through a range of 0 to 120 sec, permitting adjustment to produce molds that will result in highest quality castings. The machine is capable of turning out 40 22x28-in. shells per hour. *Mechanical Handling Systems, Inc.*

For more data circle No. 34 on postcard, p. 139.

Turn Page

Unit automatically corrects thickness variations

Production efficiency and uniformity of product are improved with a new automatic mill control unit that provides automatic correction of thickness variations in materials being rolled. The unit requires no constant attention; can be mounted on the mill wherever convenient or suitable, with indicating meter located on the operator's control

panel. Model E may be used with any continuous mill gage and with any electrically operated screw-down motor. Automatic shut-down occurs if there is tube failure, mill stoppage or slow-down below a pre-determined rpm, and a correction process taking too long to effect. *Pratt & Whitney*.

For more data circle No. 35 on postcard, p. 139.



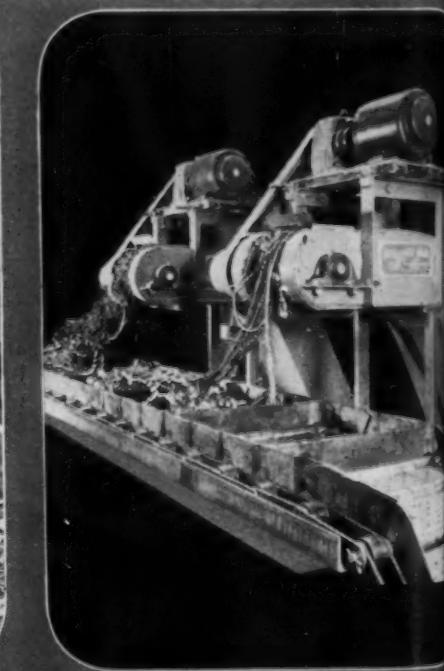
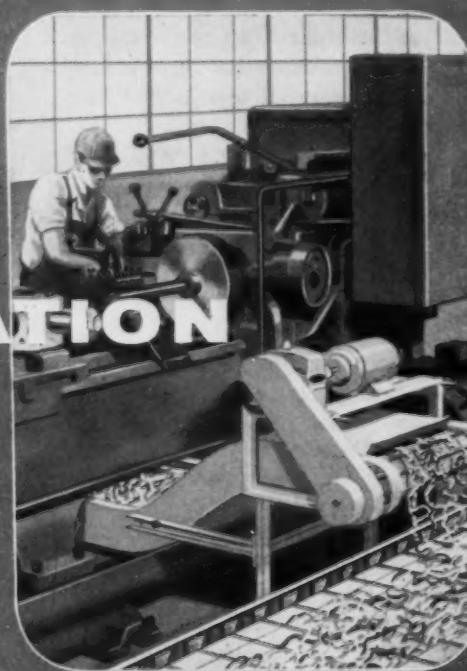
Big capacity features compact rotating drum dryer

A relatively high capacity, compact rotating drum dryer of advanced design is being produced for drying or heating granular crystalline materials in steel and by-product processing industries. The dryer may be used in production or as a pilot plant unit. Location of the surge-feed hopper above the drum permits the hot gases from fuel combustion inside the drum to flow against the incoming material in the surge hopper and thus increase

preheating efficiency. It may be operated on either bunker oil or gas. Another feature is the positive pin-sprocket transmission to the rotating drum and also the pin to pin cam transmission to the turntable feeder disk. Actual installations as a sand dryer have produced hourly capacities of 3 tons. Adjustable feeds and speeds permit suiting operation to the raw material. *Roberts & Schaefer Co.*

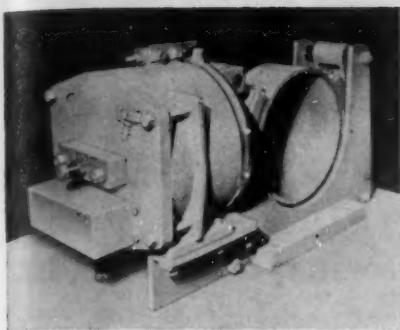
For more data circle No. 36 on postcard, p. 139.

May-Fran
... first
for
AUTOMATION
in
scrap
handling
systems



The CHIP-TOTE conveyor permits complete utilization of machine tools by eliminating shut-down for manual scrap removal.

It handles a continuous flow of hot, wet or dry chips, turnings and borings from any multiple spindle automatic machine.



New line of DC magnet brakes meet AISE standards

Reduced maintenance, easy single-point adjustment, and long life are claimed for a new line of dc magnet brakes. The brakes were developed to meet AISE dc mill motor brake standard No. 11. They are used for heavy duty applications in mill drives, materials handling, marine service, and on bridges. The line will cover the standard's 8, 10,

13, 16, 19 and 23-in. diam wheels. A single adjustment at one end of the new brake is all that is needed to take care of lining wear. An easily visible gage, the armature gap indicator, shows the normal gap position and indicates when the brake should be adjusted. *General Electric Co.*

For more data circle No. 37 on postcard, p. 139.

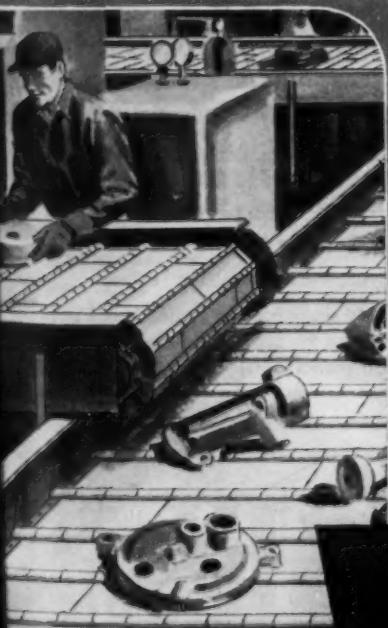
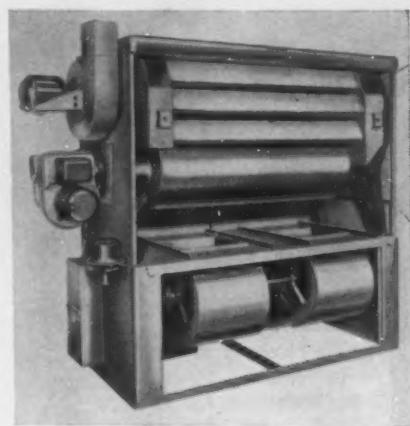
Industrial furnaces emphasize ease of installation

Heavy-duty industrial furnaces made in oil and gas-fired models are rated at 350,000 and 450,000 Btu per hr. Each unit is shipped completely wired and assembled after having been fire-tested at the factory. Installation requires only placement of the assembled unit, providing fuel, electricity and flue, and connecting any required duct-work. Furnaces may be installed vertically for air delivery upward, or suspended for downward or

horizontal air delivery. New air-foil heat exchanger of stainless steel was developed especially for the furnaces. Two double-width, double-inlet centrifugal blowers on a common shaft are said to provide excellent air distribution over the entire heat exchanger area. Furnaces measure 29 in. wide x 63 in. deep x 65½ in. high. *Armstrong Furnace Co.*

For more data circle No. 38 on postcard, p. 139.

Turn to Page 168



DESIGNERS AND ENGINEERS
OF COMPLETE SCRAP
HANDLING SYSTEMS

MAY-FRAN
ENGINEERING, INC.

Hinged-steel belting handles scrap as well as hot, heavy and abrasive castings. Belt is economical . . . maintenance-free.

Write today for complete information on how an automatic scrap removal system will cut your production costs. Bulletin MF-330 describes the new Hinged-Steel conveyor belt. Bulletin MF-640 describes the Chip-Tote conveyor which removes scrap from operating machines.



5003-MF

1698 CLARKSTONE ROAD
CLEVELAND 12, OHIO

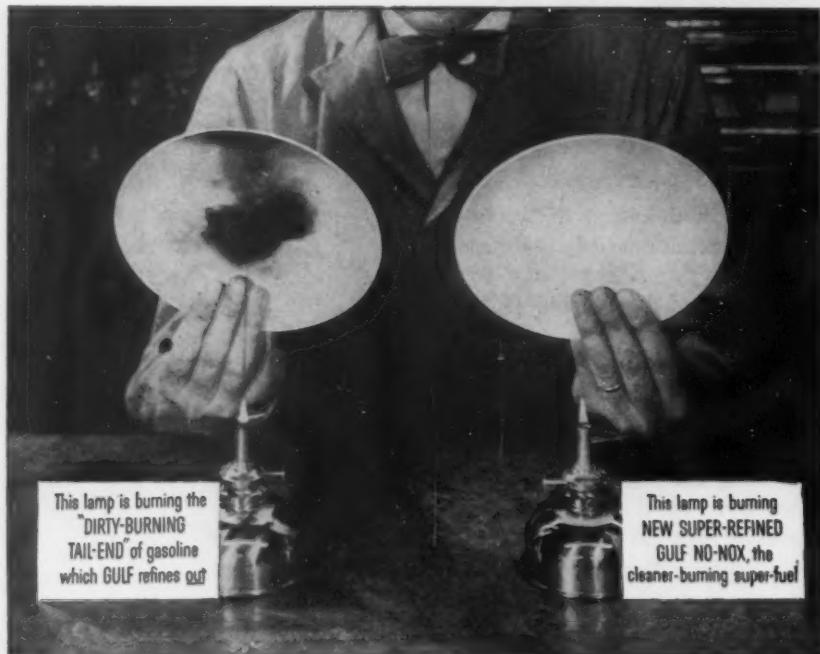
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p. 139.

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N AGE

Motorists: here's proof...

Gulf's cleaner-burning, super-refined gasoline solves today's No. 1 engine problem!



Laboratory tests promised...

... these immediate and lasting benefits from this new, super-refined fuel:

More complete engine protection than from the so-called "miracle-additive" gasolines. Why? Because Gulf refines out the "dirty-burning tail-end" of gasoline (the No. 1 troublemaker in high-compression engines)—and then treats this new Super-Refined NO-NOX to give it a complete range of protective properties. It protects every part it touches against carbon, rust, gum.

Extra gas mileage in all your everyday, short-trip, stop-and-go driving.

No knock, no pre-ignition. Why? Because the anti-knock power of new Gulf NO-NOX has been stepped up to an all-time high.

Stall-proof smoothness. Instant starts, too—and fast, fuel-saving warm-up.

That's why new Super-Refined Gulf NO-NOX gives your engine more power-with-protection than you've ever known.



Road tests proved...

These cars, powered by New Gulf No-Nox, actually performed better than new... after 15,000 miles!

True! After 15,000 miles per car—covering all conditions of city and country driving—Gulf test cars showed these results:

- Higher-than-new horsepower!
- Better-than-new on gasoline mileage!
- And not a single trace of carbon knock or pre-ignition at any time—even on the steepest mountain grades!



COMPLETELY NEW! SUPER-REFINED

New Gulf No-Nox

THE HIGH-EFFICIENCY GASOLINE

BROWNHOIST

BUILDS BETTER HEAVY-DUTY MATERIALS HANDLING

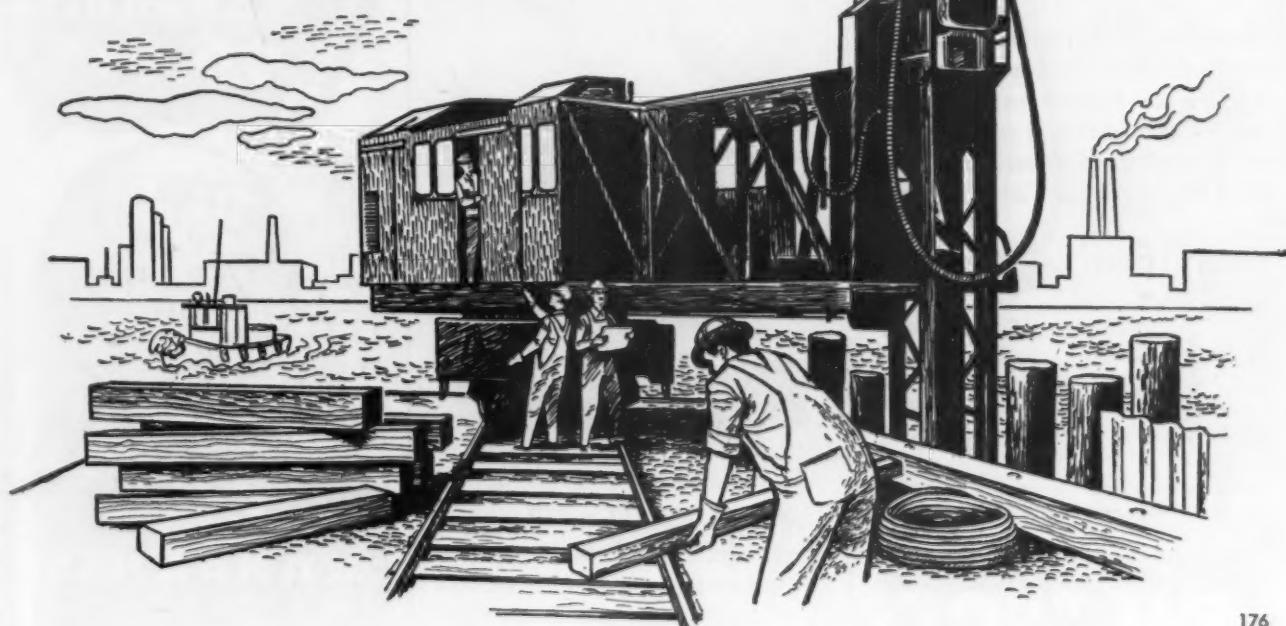
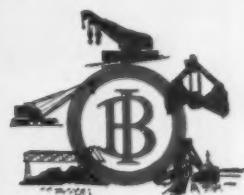
EQUIPMENT

ANNOUNCING AMERICA'S FIRST DIESEL ELECTRIC PILE DRIVER

The Industrial Brownhoist heavy-duty Diesel electric full revolving pile driver illustrated here is the first ever built. Maximum leader load is 26,000 lbs. Reach is 34' 1" from center of rotation and 20' 6" ahead of the front axle. Power battering leaders 50 feet long have a batter of 3 inches per foot. The leaders can be raised to driving position or lowered to traveling position in just one minute. Top travel speed is 20 m.p.h. with a maximum drawbar pull of 21,000 lbs. It can haul its own work train and is equipped with air brakes for braking the driver as well as the cars it is hauling.

Brownhoist also builds Diesel Electric Locomotive-Cranes in capacities from 25 tons up, Railroad Wrecking Cranes in capacities to 250 tons, boat unloaders, traveling bridge cranes, fast plants and other special equipment for handling bulk materials fast and efficiently in mines, railroads, docks and large manufacturing plants. For complete information about Brownhoist equipment to speed up your heavy materials handling, consult your nearest Brownhoist representative or write us today.

ANOTHER ADDITION TO
THE FAMOUS BROWNHOIST
FAMILY OF HEAVY-DUTY,
TIME-SAVING EQUIPMENT



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in 3 MINUTES with the
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DETERMINATOR



No. 3104 Three Minute Sulfur Determinator

The Dietert-Detroit Sulfur Determinator used with the Varitemp or Hitemp Combustion Furnace provides the most practical means of getting results in a few minutes with accuracy equal to or better than any other method.

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Simple Operation
Exact End Point
Visible Reagents
Efficient Bubbler
Meets A.S.T.M. Spec.

Let our chemists suggest a complete ready-to-go set-up to solve your sulfur analysis problems.



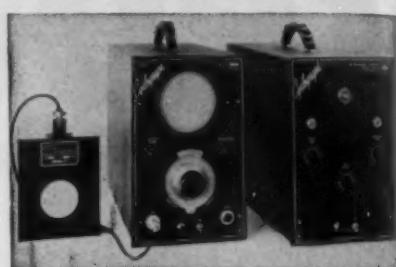
NEW EQUIPMENT

Silicone resin for paint

New silicone resin that is said to combine excellent high heat resistance with a balance of cure speed, flexibility and hardness, has been designed for the paint industry. Designated SR-111, the resin is used alone, or modified with organic resins, in formulating heat and weather resistant protective coatings for smokestacks, ovens, incinerators, exhaust manifolds, space heaters and jet engine components. Initial gloss and gloss retention were described as far superior to comparable resins. Colored formulations based on SR-111 show no color change and retain most of their initial gloss for more than 10 weeks at temperatures up to 500°F on steel and aluminum. *General Electric Co.*

For more data circle No. 39 on postcard, p. 139.

It's Dice For The Best in Metal Test Instruments



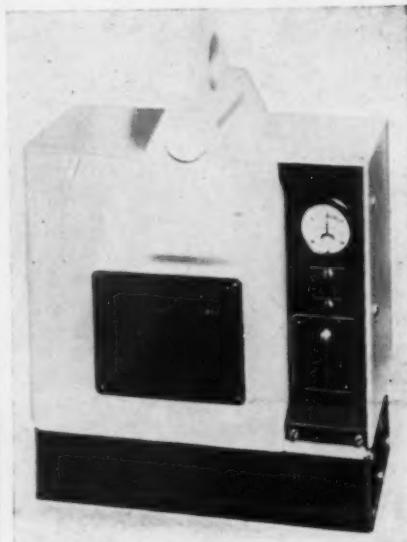
The CYCLOGRAPH (Model C)

.. for unscrambling metal mixups

This instrument permits truly high speed, non-destructive sorting of raw, semi-finished or finished parts by their metallurgical characteristics. With the new Automatic Sorter Unit speeds up to 300 pieces per minute are possible with the use of suitable feeding equipment. Used by leading industrial firms everywhere.

J. W. DICE CO. Englewood 4, New Jersey

Non-destructive Testing and Measuring Instruments



high lifting capacity for odd-shaped parts which might be difficult to lift with a sling or hook. A fabricated steel housing prevents damage from rough or careless handling. *Ohio Electric Mfg. Co.*

For more data circle No. 40 on postcard, p. 139.



NEW EQUIPMENT

Hardness tester

A fully automatic Rockwell hardness tester is designed for quality control testing the hardness of all metals, ferrous and nonferrous, in the hard or soft condition. Pieces being tested are power fed into the tester and automatically placed in position beneath a diamond penetrator. Testing loads which force



the diamond into the material to determine its hardness are applied and removed, with the resulting hardness indicated on a dial. Classifying the material being tested according to correct hardness is done by means of photo-electric units mounted on the bezel rings of the dial gage. *Wilson Mechanical Instrument Div., American Chain & Cable Co.*

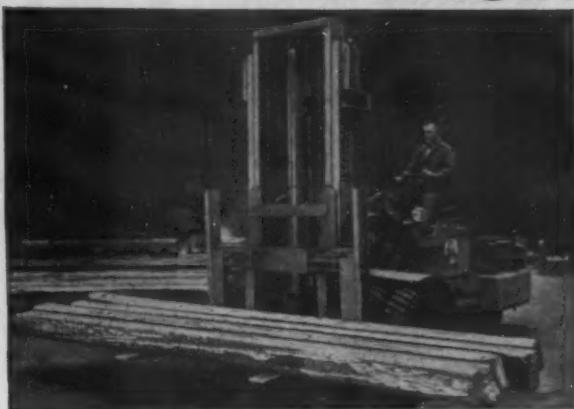
For more data circle No. 41 on postcard, p. 139.

Power machine control

By using a new packaged PMC pneumatic control unit to control power presses, brakes, shears and other machines utilizing mechanical clutches, operator fatigue is said to be reduced and operator protection on hazardous machinery is improved. The unit operates from the shop air line. Its pneumatic circuit requires that both operating valves be depressed before action takes place, assuring that operator's hands are out of danger. PMC is available in 2 or 3-in. cylinder bores, and any desired stroke length. *Modernair Corp.*

For more data circle No. 42 on postcard, p. 139.
(Turn to Page 172)

HEAVY INDUSTRY HARNESSES **LIFTRUK** HEAVY-DUTY FORK ON THE PRODUCTION LINE!



Here you see a LIFTRUK in *The Timken Roller Bearing Company* plant, Canton, Ohio, carrying a load of blooms. This is but one of hundreds of important movements required of a LIFTRUK in the metal-production fields.

LIFTRUKS are available in 5 - 7 1/2 - 10 - 15 Ton capacities. Larger sizes to order.

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LIFTRUK features = 1—Rugged dead axle for traction wheels. 2—Extra large elevating hydraulic cylinders. 3—Oversize engine clutch. 4—Generous sturdy construction of tiering frames and fork apron—these and other LIFTRUK features assure you of production materials handling and elimination of shut downs or slow ups.

Let our sales engineers give convincing proof of LIFTRUK performance to meet your specific needs.

Also available with Boom, Ram, Scoop and other attachments.

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ARMSTRONG Lathe Dogs give extra service because they are drop forged from selected open hearth steel, and are heat treated to extreme toughness and stiffness. Hubs are made large enough to permit re-tapping, screws are also of special analysis steel and are hardened at the point to prevent upsetting. ARMSTRONG Dogs come in 10 types with square head or safety headless screws, with straight or bent tails. They are carried in stock by your local ARMSTRONG Distributor.

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Leaders of American industry know they can depend on Skellyfuel for everything it takes to solve their heat-treating and stand-by gas plant problems.

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- ★ Comes in a wide variety of aluminum-oxide grits
- ★ See your Industrial Supply Dealer or write for catalog

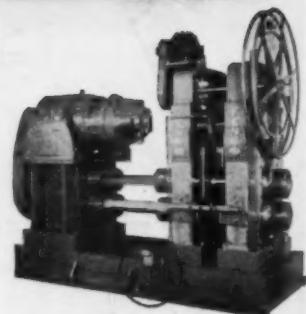
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Manufacturers of
SAND-O-FLEX and
GRIND-O-FLEX
abrasive tools

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FOR KNOW HOW**

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**RUTHMAN
GUSHER
COOLANT PUMPS**



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Illustrated is a Fenn No. 121 Two High Roller Bearing Rolling Mill equipped with a Model S-P3 Long Gusher Coolant Pump.

1 *Experience in Design . . .* Ruthman Gusher Coolant Pumps were first in their field and have maintained their leadership over the years. Ruthman engineers are constantly at work to bring you an even better Gusher Pump.

2 *Precision Built.* Only tested materials and the best workmanship go into your Gusher Coolant Pumps. You can be sure of a long trouble-free life.

3 *Efficient Operation* is inherent in Gusher Pumps. You get split-second coolant flow and they require no priming or packing.

Always Specify Ruthman Gusher Coolant Pumps.

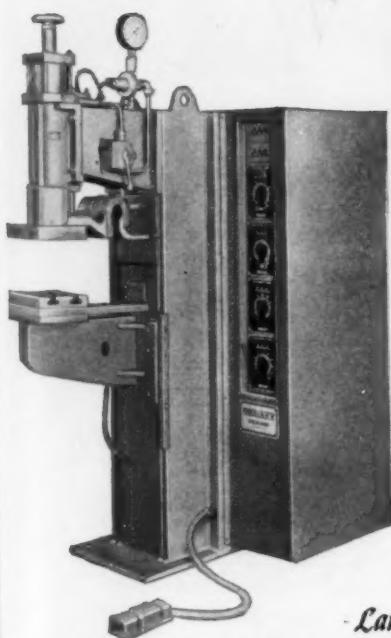
THE RUTHMAN MACHINERY CO.

1809-1823 Reading Road

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FOR THE FIRST TIME A COMPLETELY NEW DESIGN OF SMALL, LOW PRICE SCIAKY WELDERS

Featuring all the Ruggedness, Dependability and Consistency of Operation
Common to Sciaky Basic Thinking—Welders Designed to Do More Useful Work
at Lower Operating Cost with Maximum Reliability!



EP-1 AIR OPERATED, PRESS TYPE, LOW IMPEDANCE, SINGLE PHASE PROJECTION WELDER

Through advanced design, mass production tooling, and complete use of integrated parts, Sciaky is introducing a complete new line of competitively priced, small, standard projection and spot welders. Check these important design features . . .

- Pneumatic Double-Acting Cylinder Head
- Recirculating Ball Bearing System Guided Ram
- Side Mounted Sciaky Integral Control
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- Fabricated Frame with Heavy Vertical "T"
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- Heavy, Fabricated Lower Arm
- Silver-Plated, Laminated Flexible Shunt Conductor

For complete details and specifications on the EP-1 projection welder, or SP-1 spot welder, write for Bulletin 324-2.

Largest Manufacturers of Electric
Resistance Welding Machines in the World

SCIAKY

SCIAKY BROS., INC. • 4923 W. 67th STREET • CHICAGO 38, ILLINOIS



This plant's problem was removing quench oil from a wide variety of heat treated parts on a job-lot basis; part sizes and shapes varied from week to week. Special machines to clean each different group of parts was economically unsound.

So A-F Engineers recommended this A-F Cleaning Machine. Here, heat treated parts, carried in baskets, pass through consecutive high-pressure, fan-

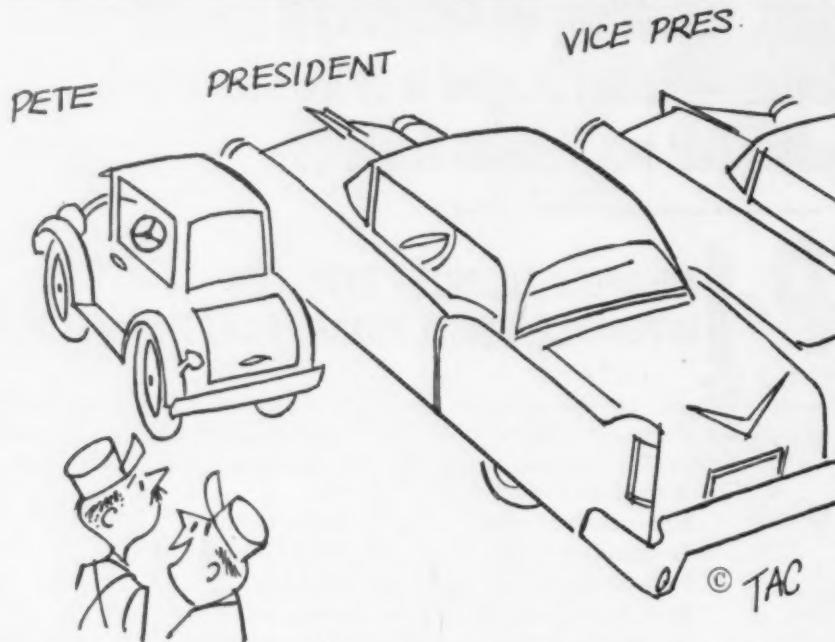
shaped curtains of solvent — then through a combination high-pressure solvent blow-off and dryer. For over a year, this single machine has efficiently and economically cleaned all parts involved.

Another example of A-F "Job Engineering for savings and efficiency".

For more information about most recent, efficient metal products cleaning and processing methods write:

THE ALVEY-FERGUSON CO.

565 Disney Street . . . Est. 1901 . . . Cincinnati 9, Ohio



"Pete's been close to the 'Old Man' ever since he suggested Columbia MOLITE High Speed Steel!"

COLUMBIA TOOL STEEL COMPANY • CHICAGO HEIGHTS, ILL.

Producers of fine tool steels — All types immediately available through Sales Offices, Warehouses and Representatives in Principal Cities.



Protects fragile loads

The possibility of breaking or cracking fragile loads during lifting with industrial trucks has been minimized with the development of a 10,000-lb capacity low lift platform truck. The truck is engi-



neered as a standard model EP-10 equipped with a special slow-speed lifting jack which cushions the shock of raising and lowering. The truck illustrated is handling a rack of green foundry cores. *Elwell-Parker Electric Co.*

For more data circle No. 43 on postcard, p. 139.

Roughing cutter

New Shear Clear face mill feeds more than 100 ipm while rough milling the main surfaces of automobile engine blocks and heads. High feed rates are achieved by means of new blade angles, coupled with the Shear Clear free cutting, shearing action. Cutting is done



on the bevel portion of the blade, producing longer and thinner chips than those developed by conventional face mills. Blades are tungsten carbide-tipped and can be used for roughing work on various metals. Sizes are from 2 1/2 in. diam up. *Ingersoll Milling Machine Co.*

For more data circle No. 44 on postcard, p. 139.

NEW EQUIPMENT

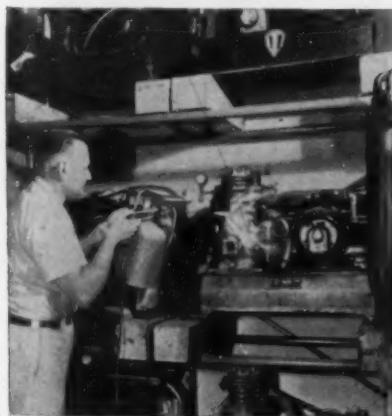
Pre-painted coils

Coil-Cote is pre-coated coils of aluminum or steel, available in any choice of color or finish. It can be formed, bent, drawn, pierced, and fabricated without danger of cracking, peeling, or crazing. The applied finish becomes almost an integral part of the metal itself and permits quality finished parts in perfect detail without chance of spoilage from additional surface preparation steps. It is stated that Coil-Cote has also proved easier on forming dies, its coating actually acting as a lubricant. Staff engineers will assist production departments in use of Coil-Cote. *Andwall Mfg. Co.*

For more data circle No. 45 on postcard, p. 139.

Steam jet sprayer

Rapid cleaning of motors, compressors, condensers, machinery, engines and small parts without the necessity of dismantling can



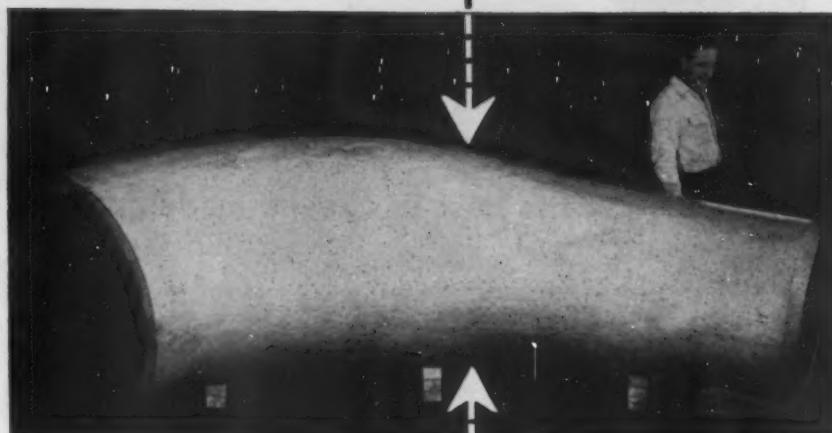
be accomplished with the new Steam Kleen jet sprayer. Steam jet feed is operated by finger tip control. Changeover from wet to dry steam is instantaneous, accomplished by tilting the unit from horizontal to vertical position. It degreasers as it cleans. Actual weight is 16 lb, ready for operation. Capacity of sprayer is $\frac{1}{2}$ gal of water. It can be brought up to operating temperature and pressure in 20 min using cold water. Unit is electrically heated, thermostatically controlled. Complies with ASME Boiler Code. *Henry Flow Control Co.*

For more data circle No. 46 on postcard, p. 139.

Turn Page

DURALOY

This Casting



Casting weight
21,000 pounds

Shipping weight
14,000 pounds

Alloying Elements
38% Ni., 18% Cr., 2% Mo.

Set a Record!

It's the weight rather than the Ni-Cr content that's the record.

We've cast many a piece with such a high Ni-Cr combination. But this represents the largest casting we have ever made. And it took careful scheduling of our entire battery of electric furnaces, with a double melt from two smaller furnaces.

Next followed a thorough X-ray for hidden flaws with our 400,000 volt unit. Then rough-finishing to specifications.

The significant fact is that this casting, the first of this size we have ever produced and destined for a most important high priority processing job, passed inspection with flying colors. There was no reject here. It is indicative of the skill of our metallurgists and foundrymen in turning out high alloy castings.

If you are looking for this kind of service, make Duraloy your casting source.

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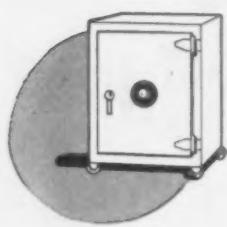
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See Hendrick for the solution!**



Sometimes the quickest, surest answer to design problems is very simple. In numerous cases, the inclusion of a pleasing pattern of perforations is just what is needed to make products more attractive and saleable. And whatever material you're using—be it metal, masonite, rubber, plastic, hard or insulated board for decorative display or fabricating purposes, Hendrick can help you.

For many years Hendrick has been building up the largest stock of dies commercially available. If you are faced with the need for bringing newer, more modern design elements into your products, Hendrick's long experience and perforating facilities can be yours for the asking. Write for more information, today.

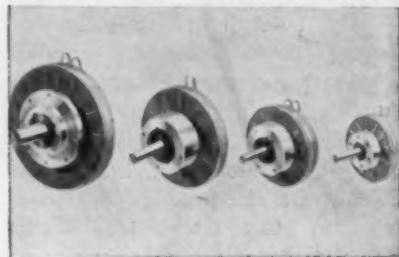
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Electric brakes, clutches

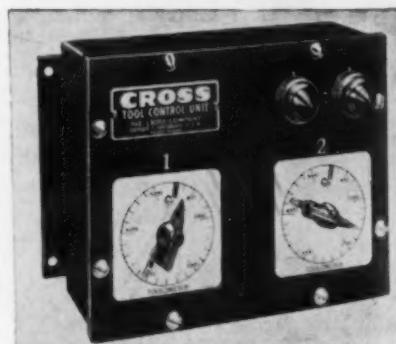
New electric brakes and clutches, suitable for use in all types of industrial machinery are available in a wide range of sizes, making their application possible on machines which heretofore have been unable to use electric control. The new brake features a replaceable facing.



Adjustment for wear is automatic and requires no manual servicing. The electric clutch operates on a stationary field principle, a method for inducing current into a rotating coil. The clutch needs no slip rings or brushes. Both brake and clutch are manufactured in the torque range of 8 lb-in. to 700 lb-in. *Warner Electric Brake & Clutch Co.* For more data circle No. 47 on postcard, p. 139.

Tool control unit

Reduced tool costs, decreased sharpening expense and increased machine efficiency are advantages obtained from a tool control unit available for all types of metal-working equipment including screw machines, drill presses, gear hob-



bers, punch presses, gear shavers and milling machines. The unit is available in four different sizes with one, two, four or eight Toolometers which automatically shut down the machine when tools need changing. *Cross Co.*

For more data circle No. 48 on postcard, p. 139.

The Iron Age SUMMARY . . .

Fourth quarter sees steel upturn firmly established . . . Auto buying gaining . . . C-R sheet market tightens . . . Openhearth scrap rises

Demand . . . The steel industry enters the fourth quarter with a business pick-up firmly established as a major industry trend. And mills expect continued improvement throughout the rest of this year.

There has still been no sharp upsurge in automotive steel buying, but at least one large auto producer has boosted his orders for sheets. A Pittsburgh mill reports that both hot and cold-rolled sheets look solid for the rest of the year. And Detroit mills boosted ingot output to 89 pct of rated capacity in anticipation of more active buying.

In the Midwest, producers are talking of a possible shortage of cold-rolled sheets later this quarter. Deliveries are now running 6 to 7 weeks, opposed to 4-5 weeks a little while back.

Increase in steel buying is not confined to sheets. Galvanized sheets, manufacturers' wire, oil country goods and specialties like stainless and silicon steels are also brighter. But merchant wire and construction items are slackening seasonally.

Scrap . . . The steel scrap market showed further strength as THE IRON AGE Heavy Melting Steel Scrap Composite Price rose \$1.83 to \$32.00 a

gross ton, highest point this year. Openhearth grades paced the advance, but price rises were reported for almost all grades. Turnings, which had been very quiet all summer, showed new life as blast furnace output was stepped up.

Major impetus behind the scrap market's new strength is of course stepped-up steelmaking activity. But other important factors include depleted mill inventories, seasonal increase in buying to compensate for lower winter collections, and exports.

Exports were not at first rated as too significant by domestic scrap consumers. But volume has been in excess of early estimates (one mill buyer says that orders have been placed for 1 million tons, with half of that already shipped). Steel mills in the East, Pittsburgh and the South now find they must pay considerably higher prices for eastern scrap, when and if it is available in desired tonnages.

Production . . . Steelmaking operations this week are scheduled at 71.0 pct of rated capacity. Ingots production index is estimated at 104.5 (1946-1949, 100). And several steel firms were relighting blast furnaces as they anticipated higher hot metal demand at the openhearth.

Steel Output, Operating Rates

Production (Net tons, 000 omitted)	This Week†	Last Week	Month Ago	Year Ago
Ingot Index (1947-49=100)	104.5	104.5	93.5	133.6
Operating Rates				
Chicago	71.0	70.0	67.5	97.0
Pittsburgh	69.0	67.0	66.0	98.0
Philadelphia	58.0	58.0	56.0	96.0
Valley	59.0	59.0	58.0	96.0
West	84.0	85.5*	73.0	95.5
Detroit	91.0	89.0	74.0	94.0
Buffalo	68.0	56.5	56.5	106.5
Cleveland	72.0	73.5	59.5	94.0
Birmingham	74.0	71.0	68.0	96.5
S. Ohio River	82.0	79.0	79.0	82.5
Wheeling	95.0	93.0	71.0	98.0
St. Louis	75.5	68.5	56.0	103.0
East	53.0	51.0	47.0	87.0
Aggregate	71.0	70.0*	63.0	95.0

* Revised. † Tentative

Prices At A Glance

(cents per lb unless otherwise noted)				
	This Week	Week Ago	Month Ago	Year Ago
Composite prices				
Finished Steel, base	4.798	4.801	4.801	4.634
Pig Iron (gross ton)	\$56.59	\$56.59	\$56.59	\$56.59
Scrap, No. 1 hvy (gross ton)	\$32.00	\$30.17	\$29.00	\$31.33
Nonferrous				
Aluminum, ingot	22.20	22.20	22.20	21.50
Copper, electrolytic	30.00	30.00	30.00	29.50
Lead, St. Louis	14.675	14.55	14.30	13.30
Magnesium, ingot	27.75	27.75	27.75	27.00
Nickel, electrolytic	63.08	63.08	63.08	63.08
Tin, Straits, N. Y.	93.25	93.25	93.25	82.25
Zinc, E. St. Louis	11.50	11.50	11.50	10.00

Upturn Gets A Solid Look

Order books reflect definite turn for the better . . .
Detroit producers step up operations anticipating auto orders
. . . Both hot and cold-rolled sheets show healthy gains.

◆ ALTHOUGH the expected big push from automotive consumers has materialized only to a limited extent, steel order books this week are reflecting a definite turn for the better. Continued improvement is looked for during remainder of the fourth quarter.

Reports from Detroit indicate that while one large automaker has stepped up his buying, particularly in sheets, other producers are holding back temporarily. However, Detroit steel producers have stepped up their operations in anticipation of heavier orders.

Significantly, a Pittsburgh sheet producer reports that both hot and cold-rolled sheets look solid through the fourth quarter. This producer has shifted his sheet mill onto a three-shift schedule to cope with upturn in demand. This mill and others in the Pittsburgh area have brought additional blast furnaces and openhearts into play.

The improved tone reaches into specialty lines, with producers of stainless and silicon steels reporting better order books.

Other encouraging spots in the market include galvanized sheets and oil country goods. Manufacturers wire has improved but merchant wire is off seasonally. Construction wire products are tapering off seasonally.

Bars are only mildly better. Alloy producers are hopefully waiting for the automakers to enter the market in force. Merchant pipe products are fair, but competitive.

Republic Steel Corp. has abandoned its county delivered price basing system, evidently due to confusion on the part of consumers and minor price spreads at opposite ends of counties. However, Republic still considers the system a good one.

One side effect of the abandonment was a lowering of THE IRON AGE Finished Steel Composite Price. This dipped from 4.801¢ per lb to 4.798¢ per lb. (See page 73). However, since actual delivered prices of Republic will remain much the same, the slight decline in the Composite Price should not be considered a sign of weakness in steel base prices.

SHEETS AND STRIPS . . . The outlook is optimistic. Demand is improving without too much help from automobile producers. Detroit reports that one large company has stepped up its order books moderately, and others are momentarily expected to re-enter the market in volume. Detroit mills have moved up their ingot rates in anticipation of more orders. Chicago reports cold-rolled sheets moving better with delivery at six weeks in the area; hot-rolled is lagging but improved; a slight improvement is noted in strip. Cleveland is feeling effects of better business from Detroit. Pittsburgh, ditto. Stainless and other specialty mills are feeling better than they have for months. A substantial improvement in orders for both stainless and silicon is looked for over balance of the quarter. However, indications are that stainless prices probably will continue un-

changed during the near future. Galvanized sheets continue in strong demand. Tinplate producers expect shipments to decline during the next several months, partly due to stepped-up deliveries prior to the price increase which went into effect Oct. 1.

BARS . . . The market is spotty and overall improvement is only moderate. Cleveland reports a gradual increase spurred by automotive supplier demand for cold-heading. Detroit bar pattern is following that of flat-rolled—a little better with prospects good.

PLATES AND STRUCTURALS . . . In Chicago, structural demand continues fair with wide-flange strong; position of standard structurals at one mill has dropped to a low point on demand list and no improvement is in sight. On the West Coast, advance bookings for October-November look encouraging. Plate producers are encouraged by award of a pipe contract for the Los Angeles metropolitan water district. The contract is on two sections—reinforced concrete pipe and steel pipe. The plate market in Chicago is depressed.

PIPE AND TUBING . . . Although more competitive, oil country goods continue to lead the parade in this category, and fourth quarter looks solid. Mechanical and pressure tubing have taken a turn for the better among Pittsburgh area producers. Merchant pipe demand continues fair but competitive on delivery. Chicago finds that volume of shipping has dipped slightly during the last week, but outlook is considered good; mechanical tubing has improved.

WIRE . . . Pittsburgh producers find merchant product demand is off seasonally, although production levels are being maintained; manufacturers wire has improved; construction products are tapering off seasonally. In Cleveland, drawn wire for industrial use is continuing to build up strength for fasteners and other applications; agricultural demand has been slow but is picking up. On the West Coast mills are confronted with stiff competition from wire and nail imports. Chicago reports manufacturer's grades continue to improve following a poor July.

Purchasing Agent's Checklist

FOUNDRIES: Construction boosts pipe, plumbing sales p. 67

EXPANSION: Allegheny-Ludlum unveils new cold mill p. 71

STEEL: Republic abandons delivered base prices p. 73

CONTRACTS: Deny Government favoritism of General Motors p. 80

Comparison of Prices

(Effective Oct. 5, 1954)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

	Oct. 5 1954	Sept. 28 1954	Sept. 7 1954	Oct. 6 1954
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	4.05¢	4.05¢	4.05¢	3.925¢
Cold-rolled sheets	4.95	4.95	4.95	4.775
Galvanized sheets (10 ga.)	5.45	5.45	5.45	5.275
Hot-rolled strip	4.05	4.05	4.05	3.925
Cold-rolled strip	5.82	5.82	5.82	5.575
Plate	4.225	4.237	4.237	4.10
Plates wrought iron	9.30	9.30	9.30	9.30
Stain's C-R strip (No. 302)	41.50	41.50	41.50	41.50

Tin and Terneplate: (per base box)

Tinplate (1.50 lb.) cokes	\$9.05	\$8.95	\$8.95	\$8.95
Tinplate, electro (0.50 lb.)	7.75	7.65	7.65	7.65
Special coated mfg. terres	7.85	7.75	7.75	7.75

Bars and Shapes: (per pound)

Merchant bars	4.30¢	4.312¢	4.312¢	4.15¢
Cold-finished bars	5.40	5.40	5.40	5.20
Alloy bars	5.075	5.075	5.075	4.875
Structural shapes	4.25	4.25	4.25	4.10
Stainless bars (No. 302)	35.50	35.50	35.50	35.50
Wrought iron bars	10.40	10.40	10.40	10.40

Wire: (per pound)

Bright wire	5.75¢	5.75¢	5.75¢	5.525¢
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Rails: (per 100 lb.)

Heavy rails	\$4.45	\$4.45	\$4.45	\$4.325
Light rails	5.35	5.35	5.35	5.20

Semifinished Steel: (per net ton)

Rerolling billets	\$64.00	\$64.00	\$64.00	\$62.00
Slabs, rerolling	64.00	64.00	64.00	62.00
Forging billets	78.00	78.00	78.00	75.50
Alloy blooms, billets, slabs	86.00	86.00	86.00	82.00

Wire Rod and Skelp: (per pound)

Wire rods	4.675¢	4.675¢	4.675¢	4.525¢
Skelp	3.90	3.90	3.90	3.75

Finished Steel Composite: (per pound)

Base price	4.798¢	4.801¢	4.801¢	4.634¢
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Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

← To identify producers, see Key on P. 189 →

Producing Point	Basic	Fdry.	Mall.	Bozz.	Low Phos.
Bethlehem B3	58.00	58.50	59.00	59.50	.....
Birmingham R3	52.38	52.88	.....	.....	.....
Birmingham W9	52.38	52.88	.....	.....	.....
Birmingham U4	52.38	52.88	56.50	.....	.....
Buffalo R3	56.00	56.50	57.00	.....	.....
Buffalo III	56.00	56.50	57.00	.....	.....
Buffalo W6	56.00	56.50	57.00	.....	.....
Chicago I4	56.00	56.50	56.50	57.00	.....
Cleveland A5	56.00	56.50	56.50	57.00	61.00
Cleveland R3	56.00	56.50	56.50	56.50	.....
Daingerfield L3	52.50	52.50	52.50	.....	.....
Duluth I4	56.00	56.50	56.50	57.00	.....
Erie I4	56.00	56.50	56.50	57.00	.....
Everett M6	61.00	61.50	.....	.....	.....
Fantana K1	62.00	62.50	.....	.....	.....
Geneva, Utah C7	56.00	56.50	.....	.....	.....
Granite City G2	57.90	58.40	58.90	.....	.....
Hubbard Y1	.....	.....	56.50	.....	.....
Minnequa C6	58.00	59.00	59.00	.....	.....
Monessen P6	56.00	.....	.....	.....	.....
Neville Isl. P4	56.00	56.50	56.50	.....	.....
Pittsburgh U1	56.00	56.50	56.50	57.00	.....
Sharpsburg S1	56.00	56.50	56.50	57.00	.....
So. Chicago R3	56.00	56.50	56.50	64.00	.....
Steelton B3	58.00	58.50	59.00	59.50	.....
Swedeland A2	58.00	58.50	59.00	59.50	.....
Toledo I4	56.00	56.50	56.50	57.00	.....
Troy, N. Y. R3	58.00	58.50	59.00	59.50	64.00
Youngstown Y1	56.00	56.50	56.50	57.00	.....
N. Tonawanda T1	56.50	57.00	.....	.....	.....

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct except low phos, 1.75 to 2.00 pct); 50¢ per ton for each 0.50 pct manganese over 1 pct; \$2 per ton for 0.5 to 0.75 pct nickel; \$1 for each additional 0.25 pct nickel. Subtract 38¢ per ton for phosphorus content 0.70 and over.

Silvery Iron: Buffalo, H1, \$68.25; Jackson, J1, G1 \$67.00. Add \$1.50 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. Add \$1 per ton for 0.75 pct or more phosphorus. Add 75¢ per ton for each 0.50 pct manganese over 1.0 pct. Bessemer ferrosilicon prices are \$1 over comparable silvery iron.

STAINLESS STEEL

Base price cents per lb. f.o.b. mill

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	16.25	17.25	18.75	18.25	28.00	22.75	24.50	14.00	.....	14.25
Slabs, billets, rerolling	20.50	22.75	24.75	23.75	36.25	29.50	32.25	18.25	.....	18.50
Forg. discs, die blocks, rings	38.50	38.50	41.50	40.50	60.00	45.50	50.75	31.00	31.75	31.75
Billets, forging	29.50	29.75	32.25	31.00	46.50	35.25	39.50	24.00	24.50	24.50
Bars, wires, structures	35.25	35.50	38.25	37.25	55.50	42.00	46.75	28.75	29.25	29.25
Plates	37.25	37.50	39.75	39.75	58.75	45.75	51.25	36.00	36.50	36.50
Sheets	41.25	41.50	48.75	43.75	62.75	50.50	59.25	34.25	41.25	34.75
Strip, hot-rolled	29.75	32.00	36.75	34.25	53.25	41.00	46.50	26.25	.....	27.00
Strip, cold-rolled	38.25	41.50	45.50	43.75	62.75	50.50	59.25	34.25	41.25	34.75

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., C11; Brackenridge, Pa., A3; Butler, Pa., A7; McKeesport, Pa., U1; Washington, Pa., W2, J2; Baltimore, E1; Middletown, O., A7; Massillon, O., R3; Gary, U1; Bridgeville, Pa., U2; New Castle, Ind., I2; Ft. Wayne, J4.

*Strip: Midland, Pa., C11; Cleveland, A5; Carnegie, Pa., S9; McKeesport, Pa., F1; Reading, Pa., C2; Washington, Pa., W2; W. Leechburg, Pa., A1; Bridgeville, Pa., U2; Detroit, M2; Canton-Massillon, O., R3; Middletown, O., A7; Harrison, N. J., D3; Youngstown, C5; Sharon, Pa., S1; Butler, Pa., A7; Wallingford, Conn., U3 (25¢ per lb higher) W1 (25¢ per lb higher); New Bedford, Mass., R6.

*Bar: Baltimore, A7; Duquesne, Pa., U1; Munhall, Pa., U1; Reading, Pa., C2; Titusville, Pa., U2; Washington, Pa., J2; McKeesport, Pa., U1; F1; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R3; Chicago, U1; Syracuse, N. Y., C11; Watervliet, N. Y., A3; Waukegan, A5; Canton, O., T5; Ft. Wayne, J4.

Wire: Waukegan, A5; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, J4; Harrison, N. J., D3; Baltimore, A7; Dunkirk, A3; Monessen, P1; Syracuse, C11; Bridgeville, U2.

Structural: Baltimore, A7; Massillon, O., R3; Chicago, Ill., J4; Watervliet, N. Y., A3; Syracuse, C11.

Plates: Brackenridge, Pa., A3; Chicago, U1; Munhall, Pa., U1; Midland, Pa., C11; New Castle, Ind., I2; Middletown, A7; Washington, Pa., J2; Cleveland, Massillon, R3; Coatesville, Pa., C15.

Forged discs, die blocks, rings: Pittsburgh, C11; Syracuse, C11; Ferndale, Mich., A3; Washington, Pa., J2.

Forging billets: Midland, Pa., C11; Baltimore, A7; Washington, Pa., J2; McKeesport, F1; Massillon Canton, O., R3; Watervliet, A3; Pittsburgh, Chicago, U1; Syracuse, C11.

No Answer On Stockpile

Labor Dept. opposes copper diversion . . . Says union would call it strike-breaking . . . ODM states it will not change copper policy . . . Door seen open—By R. L. Hatschek.

♦ WITH Labor Dept. opposing the proposed diversion of copper from the stockpile to industry, Office of Defense Mobilization states that there will be no change in copper policy—which means practically nothing.

Labor Dept. opposition, of course, is based on the thesis that unions would construe such action as a strike-breaking move while the strikes continue. Labor Dept. feels the government should not move in as this is not a national emergency.

But actually, the door may still be open to the use of stockpile or stockpile-destined copper to alleviate the extremely tight situation. The move may merely be awaiting settlement of the remaining copper strikes. How could such a move be called a strike-breaking activity after settlement if the intent to do so is held in secrecy beforehand?

This may have been ODM's thinking when it prepared the cryptic "no change" statement.

COPPER . . . Meanwhile, the market continues to get tighter and prices, with the solid exception of

producers, continue to rise. London Metal Exchange prices this week climbed above 37¢, a new record.

Dealer scrap buying prices edged up further with New York prices reaching up to 26½¢ per lb for No. 1 heavy copper and wire and other grades proportionate.

As this issue went to press, meetings were scheduled to begin among producers and striking unions. Some of the negotiators are not really very far apart on terms and it is hoped that at least some of the strikers will be going back to work by the time you read this.

LEAD . . . The domestic market last week showed unusual resistance to following the London Metal Exchange's rising lead price. On Friday, London rose nearly ½¢ per lb above parity with the New York price of 14.75¢. Contrary to trade expectations the domestic price didn't budge. Previously, it seemed, every time London rose ¼¢ above its New York equivalent it provided a signal to boost prices here by ¼¢ despite any lack of buying interest.

Further rise in London on Monday brought that market to a New York equivalent of 15.5¢—at which only one domestic seller boosted lead to 15¢ per lb at New York. Others

showed no hurry in following.

While it's still true that U. S. lead consumers haven't shown any significant signs of boosting their buying, this was not the major consideration in holding the price steady. Main factor in at least slowing the increase was the fear of losing or curtailing an outlet for some 10,000 tons this month. That is about the tonnage General Services Administration has been buying for the stockpile.

At presstime, GSA was expected to come into the market sometime this week. But since the real reason for the stockpiling is to bolster the industry, not to build up the strategic stockpile, producers feared another price hike might cause GSA to cut its tonnage—maybe to nothing.

ZINC . . . Picture in zinc is quite different from the showing in its twin, lead. London prices continue to loaf along below New York parity. And consumers have been taking good tonnages in the past couple of weeks. Buyer preference—it should be noted—is for transactions to be made on a flat price basis.

With trading at a good level and GSA at least supporting the price, the tone is definitely strong and a price increase is a definite possibility.

MAGNESIUM . . . Primary ingot production in August was at the lowest point in nearly 3 years with a total of 5771 tons. Output in July was 6049 tons.

It's reported that the government's Velasco, Tex., plant may be shut down and placed in standby condition before this year is over. This would leave Dow Chemical Co.'s Freeport, Tex., plant the only facility in the nation producing primary magnesium.

ALUMINUM . . . Current was turned on last week in the second potline at Aluminum Co. of Canada's Kitimat smelter. This completes the first phase of construction at the huge plant and brings its capacity to 91,500 tons annually. With Alcan's Quebec capacity rated at over 500,000 tons, the company is now able to produce something over 600,000 tons a year. And it brings North American capacity to about 2.1 million tons.

NICKEL . . . GSA has signed a contract with International Nickel Co., Inc., for delivery of an additional 2250 tons of nickel in the next 10 months. Inco will refine concentrates produced by Sherritt Gordon Mines Ltd.

Daily Nonferrous Metal Prices

(Cents per lb except as noted)

	Sept. 29	Sept. 30	Oct. 1	Oct. 2	Oct. 4	Oct. 5
Copper, electro, Conn.	30.00	30.00	30.00	30.00	30.00	30.00
Copper, Lake, delivered	30.00	30.00	30.00	30.00	30.00	30.00
Tin, Straits, New York	93.625	93.50	93.25	...	93.25	93.25*
Zinc, East St. Louis	11.50	11.50	11.50	11.50	11.50	11.50
Lead, St. Louis	14.55	14.55	14.55	14.55	14.55	14.55
	...	...	...	...	14.80	14.80

Note: Quotations are going prices

*Tentative

Monthly Average Metal Prices

(Cents per lb except as noted)

Average prices of the major nonferrous metals in September, based on quotations appearing in THE IRON AGE, were as follows:

Electrolytic copper, Del'd Conn. Valley	30.00	Zinc, E. St. Louis	11.480
Lake copper, delivered	30.00	Zinc, New York	11.980
Straits tin, New York	93.524	Lead, St. Louis	14.400
		Lead, New York	14.600

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Nonferrous Prices

(Effective Oct. 5, 1954)

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb f.o.b. ship. pt., frt. allowed)

Flat Sheet: 0.136-0.249 in., 2S, 3S, 34.9¢; 4S, 37.1¢; 52S, 39.2¢; 24S-O, 24S-OAL, 38.8¢; 7S-O, 75S-OAL, 45.8¢; 0.08 in., 2S, 3S, 36.1¢; 4S, 38.4¢; 52S, 40.9¢; 24S-O, 24S-OAL, 39.8¢; 75S-O, 75S-OAL, 48.1¢; 0.032 in., 2S, 3S, 38.1¢; 4S, 43.0¢; 52S, 45.7¢; 24S-O, 24S-OAL, 48.4¢; 75S-O, 75S-OAL, 59.8¢.

Plate, 1/4-in. and heavier: 2S-F, 3S-F, 38.6¢; 4S-F, 38.7¢; 52S-F, 37.4¢; 61S-O, 36.8¢; 24S-OAL, 38.4¢; 75S, 75S-OAL, 45.8¢.

Extruded Solid Shapes: Shape factors 1 to 5, 37.7¢ to 85.7¢; 12 to 14, 38.4¢ to \$1.03; 24 to 26, 41.2¢ to \$1.34; 36 to 38, 48.8¢ to \$1.96.

Rod, Round: Rolled, 1.064-4.5 in., 2S-F, 42.6¢ to 89.1¢; cold finished, 0.375-3.499 in., 2S-F, 46.9¢ to 41.4¢.

Screw Machine Stock: Rounds, 11S-T3, 1/4-1/2 in., 62.5¢ to 49.1¢; 3/16-1/2 in., 48.9¢ to 45.9¢; 19/16-3 in., 44.7¢ to 41.7¢. Base 5000 lb.

Drawn Wire: Coiled, 0.051-0.374 in., 2S, 46.1¢ to 34.8¢; 52S, 55.7¢ to 43.4¢; 17S-T4, 43.8¢ to 43.7¢; 61S-T4, 58.5¢ to 43.1¢.

Extruded Tubing: Rounds, 63S-T5, OD 1 1/4-2 in., 43.4¢ to 63.8¢; 2-4 in., 39.3¢ to 53.6¢; 4-6 in., 39.8¢ to 48.8¢; 6-9 in., 40.4¢ to 51.1¢.

Roofing Sheet: Flat, per sheet, 0.032-in. 42¢ x 60-in., \$2.918; x 96-in., \$4.672; x 120-in., \$5.841; x 144-in., \$7.009. Coiled sheet, per lb, 0.019 in. x 28 in., 29.9¢.

Magnesium

(F.o.b. mill, freight allowed)

Sheet & Plate: FSI-O 1/4 in., 56¢; 3/16 in., 57¢; 1/8 in., 60¢; 0.064 in., 78¢; 0.032 in., 94¢. Specification grade higher. Base 30,000 lb.

Extruded Round Rod: M, diam 1/4 to 0.311 in., 77¢; 1/2 to 1 in., 60.5¢; 1/4 to 1.749 in., 56¢; 2 1/2 to 5 in., 51.5¢. Other alloys higher. Base up to 1/4 in. diam, 10,000 lb; 1/4 to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes: Rectangles: M. In weight per ft. for perimeters less than size indicated: 0.10 to 0.11 lb, 3.5 in., 65.3¢; 0.22 to 0.26 lb, 5.0 in., 62.8¢; 0.50 to 0.59 lb, 8.6 in., 69.7¢; 1.8 to 2.59 lb, 19.5 in., 56.8¢; 4 to 6 lb, 28 in., 52¢. Other alloys higher. Base, in weight per ft of shape: Up to 1/2 lb, 10,000 lb; 1/2 to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, 0.049 to 0.057 in. wall thickness: OD 1/4 to 1/16 in., \$1.43; 5/16 to 3/8 in., \$1.29; 1/2 to 5/8 in., 96¢; 1 to 2 in., 79¢; 0.165 to 0.219 in. wall: OD, 3/8 to 1/2 in., 64¢; 1 to 2 in., 60¢; 3 to 4 in., 59¢. Other alloys higher. Base, OD: Up to 1 1/4 in., 10,000 lb; 1 1/4 to 8 in., 20,000 lb; over 8 in., 30,000 lb.

Titanium

(10,000 lb base, f.o.b. mill)

Commercially pure and alloy grades; Sheets and strip, HR or CR, \$15; Plate, HR, \$12; Wire, rolled and/or drawn, \$11; Bar, HR or forged, \$6; Forgings, \$6.

Nickel, Monel, Inconel

(Base prices, f.o.b. mill)

"A" Nickel Monel Inconel
Sheet, CR ... 86 1/2 67 1/2 93 1/2
Strip, CR ... 92 1/2 70 1/2 95 1/2
Rod, bar ... 82 1/2 65 1/2 88 1/2
Angles, HR ... 82 1/2 65 1/2 88 1/2
Plate, HR ... 84 1/2 66 1/2 90 1/2
Seamless tube, 115 1/2 100 1/2 137 1/2
Shot, blocks ... 60

Copper, Brass, Bronze

(Freight included on 500 lb)

	Sheet	Rods	Shapes
Copper	46.41	44.73	48.48
Copper, h-r	48.33	44.73	48.48
Copper, drawn	45.98		
Low brass	44.47	44.41	
Yellow brass	41.72	41.66	
Red brass	45.44	45.38	
Naval brass	45.76	40.07	
Leaded brass			39.11
Com. bronze	46.95	46.89	
Mang. bronze	49.48	43.62	45.18
Phos. bronze	66.58	67.08	
Muntz metal	43.96	39.77	41.02
NI silver, 10 pct	55.36		62.68
Beryllium copper, CR, 1.9% Be, Base			
2000 lb, f.o.b.			
Strip			\$1.68
Rod, bar, wire			1.65

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb,
freight allowed 22.20
Aluminum pig 20.50
Antimony, American, Laredo, Tex. 28.50
Beryllium copper, per lb conta'd Be, \$40.00
Beryllium aluminum 5% Be, Dollars
per lb contained Be 72.75
Bismuth, ton lots 2.25
Cadmium, del'd 1.70
Cobalt, 97-99% (per lb) 2.60 to \$2.67
Copper, electro, Conn. Valley 30.00
Copper, Lake, delivered 30.00
Gold, U. S. Treas., per troy oz. 35.00
Indium, 99.8%, dollars per troy oz. 2.25
Iridium, dollars per troy oz. \$165 to \$175
Lead, St. Louis 14.55-14.80
Lead, New York 14.75-15.00
Magnesium, 99.8+%, f.o.b. Freeport,
Tex., 10,000 lb, pig 27.00
Magnesium, sticks, 100 to 500 lb,
46.00 to 48.00
Mercury, dollars per 76-lb flash,
f.o.b. New York \$323 to \$329
Nickel electro, f.o.b. N. Y. warehouse 63.08
Nickel oxide sinter, at Copper
Creek, Ont., contained nickel 56.25
Palladium, dollars per troy oz. \$21.00
Platinum, dollars per troy oz. \$84 to \$87
Silver, New York, cents per troy oz. 85.25
Tin, New York 93.25
Titanium, sponge, grade A-1 4.72
Tin, East St. Louis 11.50
Zinc, New York 12.00
Zirconium copper, 50 pct \$6.20

REMETAL METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot
No. 115 28.00-28.50
No. 120 27.25-27.75
No. 123 26.75-27.25
80-10-10 ingot
No. 305 33.00
No. 315 30.75
88-10-2 ingot
No. 210 41.75
No. 215 38.25
No. 245 33.75
Yellow ingot
No. 405 24.25
Manganese bronze
No. 421 26.75

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
0.30 copper, max. 23.50-24.00
0.60 copper, max. 23.25-24.00
Piston alloys (No. 122 type) 20.75-22.00
No. 12 alum. (No. 2 grade) 20.50-21.00
108 alloy 21.25-21.75
195 alloy 22.00-22.50
13 alloy (0.60 copper max.) 23.25-23.75
ASX-679 21.25-21.75

Steel deoxidizing aluminum, notch-bar
granulated or shot

Grade 1-96.97 1/4% 21.00-22.00
Grade 2-92.95% 20.00-21.00
Grade 3-90-92% 19.00-20.00
Grade 4-85-90% 17.50-19.00

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 5000 lb lots)

Copper
Cast, oval, 15 in. or longer 42.64
Electrodeposited 41.88
Flat rolled 45.04
Brass, 80-20
Cast, oval, 15 in. or longer 43.515
Zinc, flat cast 20.25
Ball, anodes 18.50
Nickel 99 pct plus
Cast 84.00
Cadmium \$1.70
Silver 999 fine, rolled, 100 oz. lots
per troy oz., f.o.b. Bridgeport,
Conn. 94%

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum 63.00
Copper sulphate, 99.5 crystals, bbl. 12.85
Nickel salts, single or double, 4-100
lb bags, frt. allowed 30.00
Nickel chloride, 375 lb drum 38.00
Silver cyanide, 100 oz. lots, per oz. 75 1/2
200 lb drums 19.25
Zinc cyanide, 100 lb drum 54.30

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for
shipments of 20,000 lb and over)

Heavy	Turnings
26	25 1/4
19 1/4	18
23	22 1/4
23 1/2	23 1/4
18 1/4	17 1/4
19 1/4	18 1/4

Copper
Yellow brass
Red brass
Comm. bronze
Mang. bronze
Yellow brass rod ends
*Dry copper content.

Ingot Makers' Scrap

(Cents per pound carload lots, delivered
to refinery)

No. 1 copper wire	28 1/2
No. 2 copper wire	25 1/2
Light copper	24
No. 1 composition	22 1/2
No. 1 comp. turnings	21 1/2
Rolled brass	17 1/2-18
Brass pipe	18 1/2-19
Radiators	18 1/2-18 1/4

Mixed old cast 14-14 1/2
Mixed new clips 14 1/4-14 1/2
Mixed turnings, dry 14 1/4-14 1/2
Pots and pans 14-14 1/2

Dealers' Scrap

(Dealers' buying price, f.o.b. New York
in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	25 1/2-26 1/4
No. 2 heavy copper and wire	24 1/2-24 3/4
Light copper	22 1/2-23 1/4
New type shell cuttings	21 1/2
Auto radiators (unsweated)	16-16 1/2
No. 1 composition	19 1/2
Unlined red car boxes	16 1/2
Cocks and faucets	16 1/2-17
Mixed heavy yellow brass	13 1/4
Old rolled brass	16
Brass pipe	17
New soft brass clippings	18
Brass rod ends	16
No. 1 brass rod turnings	15

Aluminum

Alum. pistons and struts	7 1/2-8 1/2
Aluminum crankcases	11
2S aluminum clippings	14 1/2
Old sheet and utensils	11
Borings and turnings	7-7 1/2
Misc. cast aluminum	11
Dural clips (24S)	12 1/2

Zinc

New zinc clippings	7
Old zinc	3 1/2-3 3/4
Zinc routings	3 1/2-3 3/4
Old die cast scrap	3 1/2-3 3/4

Nickel and Monel

Pure nickel clippings	60
Clean nickel turnings	40
Nickel anodes	60
Nickel rod ends	60
New Monel clippings	23
Clean Monel turnings	16
Old sheet Monel	21
Nickel silver clippings, mixed	15
Nickel silver turnings, mixed	13

Lead

Soft scrap lead	11 1/2
Battery plates (dry)	6 1/2-6 1/2
Batteries, acid free	4 1/2-4 1/2

Magnesium

Segregated solids	18 1/2-19
Castings	17 1/2-18

Miscellaneous

Block tin	75
No. 1 pewter	55
No. 1 auto babbitt	48
Mixed common babbitt	12
Solder joints	17 1/2
Siphon tops	45
Small foundry type	16 1/2
Monotype	15
Lino. and stereotype	14
Electrotype	12 1/2
Hand picked type shells	9 1/2
Lino. and stereo. dress	6 1/2
Electro dress	5

Composite Hits Year's High

Openhearth grades advance as much as \$3 . . . Composite at \$32 . . . Relit blast furnaces stiffen turnings market . . . Cast, rails also up in some areas . . . Mills feel export volume.

♦ THE IRON and steel scrap market showed new strength this week, with openhearth grades advancing anywhere from \$1 to \$3 per ton. THE IRON AGE Heavy Melting Steel Scrap Composite Price rose to \$32.00, an increase of \$1.83 over last week and a new high for the year.

While openhearth grades paced the advance, new business was by no means limited to them. Cast and railroad grades continued to advance in several areas, while turnings rose as much as \$2 in some areas. Turnings' new-found strength followed relighting of several blast furnaces in anticipation of increased hot metal demand. Merchant pig sales have risen somewhat, but are due more to a tightening cast scrap market than to any real boost in foundry activity.

Exports continued strong in the East. Domestic mills reported difficulty in securing eastern scrap even at advanced prices. There are now indications that mills had earlier underestimated the volume of exports. One mill buyer estimates that orders for 1 million tons have been placed, with over half already shipped. It's still just talk, but there are mutterings about asking Commerce to limit scrap export licenses.

Pittsburgh . . . Everything points to a still stronger market in this area. Steelmaking grades are up \$1 per ton this week following a purchase by a leading consumer. Over 35,000 tons was involved in the deal, which pegged prices at \$33, \$30, and \$27, respectively, for No. 1, No. 2, and No. 3 bundles. However, part of this will move at 50¢ less per ton on all three grades to mills closer freightwise to dealers' yards. In addition, deliveries will be spread over

60 days rather than the usual 30 days. And indications are this mill will not re-enter the market during balance of the year. Other mills probably will come in sooner, and pressure will be on for higher prices. Mills have started up additional blast furnaces to offset the upward trend. Blast furnace grades are up \$2. Other grades moved up in sympathy. Latest industrial bundles list here went for \$35 F.O.B., up nearly \$2 from previous list.

Chicago . . . This scrap market broke loose last week after a mild advance the week previous for a \$3 increase that began with an industrial heavy melting sale at \$33 and ended with dealer No. 1 heavy leapfrogging the industrial grade to reach a high of \$34. At the same time, turnings moved up, though in a more orderly manner, reaching a \$20 high on shoveling turnings.

Philadelphia . . . Market here is very strong with openhearth grades up \$1.50 to \$2 and low phos up \$1 on new sales. With the market in this position, dealers are tending to hold their yard stocks in anticipation of further increases. Export still continues to be a major factor and more local mills are reported nibbling for scrap.

New York . . . Export business still carrying the ball with strength that moved steelmaking grades up \$1. Premiums are reported on heavy tonnages.

Detroit . . . Prices for openhearth and blast furnace grades strengthened across the board in amounts varying between \$1 and \$2. The strength in the Detroit market appears to come from mills within the district rather than from outside, as has been the rule in the past. Part is due to the low auto production, resulting in little industrial scrap, but some to a gradual lessening of Detroit's plus condition in scrap.

Cleveland . . . This market went up \$2 last week at top level in both Cleveland and Valley areas. Dealers' quotations were reported varying widely in anticipation of a surge. Higher prices on industrial lists are helping rise. Mills, however, are waiting until their order books are a little fuller before jumping in with both feet. One additional blast furnace was to have been started this week after prolonged delays and continues to pose a threat against a scrap price surge. Valley market joined in price rise with Cleveland and was expected to chalk up additional purchases within a week.

Birmingham . . . Movement of scrap metals has slowed down in the South the past week principally because dealers believe that strength in northern markets soon will bring higher prices in the South. As a result they are holding onto their stocks.

Buffalo . . . Local and Valley buying boosted scrap prices 50¢ to \$2.00 a ton. Strength swept through the entire market as the steel operating rate climbed to 68 pct. No. 1 material jumped \$2.00 to \$31.00 and dealers reported difficulty finding material.

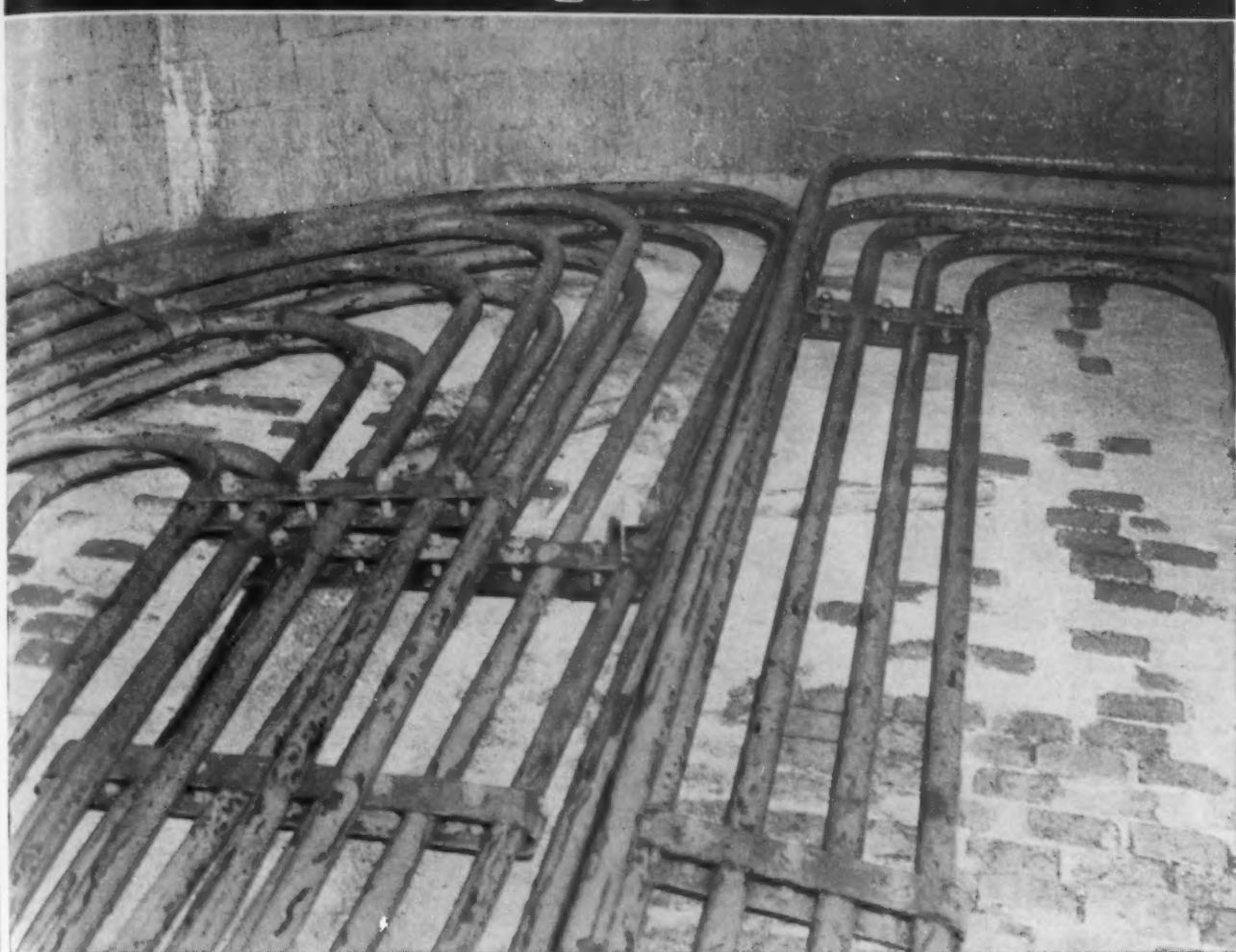
St. Louis . . . The district steel operating rate jumped to 75.5 pct this week, highest it has been since Jan. 2, 1954. Heavier production plus advances by a major eastern consumer and a strong Chicago market caused mills to increase their prices on No. 2 heavy melting \$3.50 per ton and other items from \$1 to \$3.

Boston . . . Strength of the market has finally made itself felt in higher prices with openhearth material now quoted at \$1 to \$2 higher. Better volume of business is anticipated in the New England scrap trade with Pittsburgh mills showing more interest.

West Coast . . . A San Francisco scrap expert says inventories have been held down and any little change in demand will be felt pronto. Others claim they won't be surprised to see some scrap shipped from West Coast to Europe and eastern outlets because of the price differential which might make such shipments logical. A full cargo is tentatively slated for shipment from Oakland to Japan.

Cincinnati . . . Market continues weaker than Cleveland and Youngstown but went up \$1 on most grades on basis of sales to one mill.

Alum Evaporator Coils of *Carpenter* Stainless No. 20Cb



Life Expectancy 25 Years... Trouble-Free!

A large chemical manufacturing company had a problem with heating coils for alum solutions of 8½ to 17%, at temperatures from 115 to 120°C. Continual repairs were needed, costly time-consuming down-time was frequent, steam leaks into the solution made quality almost impossible to maintain.

They switched to Carpenter Stainless No. 20Cb tubing for coils... to Carpenter Stainless No. 20 bar and strip for braces, hangers and fasteners. Downtime and coil repairs are a thing of the past. Steam leaks have been eliminated. Corrosion rate is estimated at .001" penetration per year. A useful life of 25 years or more is expected of these coils!

You may not have a precisely parallel problem. But if corrosion is costing you too much, if you are handling strong acids and other severe corrosives, write today for the NEW Carpenter Stainless No. 20 BULLETIN. It may be the cure for your biggest headache.

The Carpenter Steel Company, Alloy Tube Division, Union, N. J.
Export Dept.: The Carpenter Steel Co., Port Washington, N. Y. — "CARSTEELCO"



FOR INFORMATION... on Carpenter Stainless No. 20 tubing, pipe, sheet, plate and bars, contact The Carpenter Steel Company, Alloy Tube Division, Union, N.J. . . . on Carpenter 20 strip, wire, bars and billets, contact The Carpenter Steel Company, Reading, Pa.

Scrap Prices

(Effective Oct. 5, 1954)

Pittsburgh

No. 1 hvy. melting	\$32.00 to \$33.00
No. 2 hvy. melting	29.00 to 30.00
No. 1 bundles	32.00 to 33.00
No. 2 bundles	26.00 to 27.00
Machine shop turn.	18.00 to 19.00
Mixed bor. and ms. turns.	18.00 to 19.00
Shoveling turnings	22.00 to 23.00
Cast iron borings	22.00 to 23.00
Low phos. punch'gs, plate	36.00 to 36.00
Heavy turnings	29.00 to 30.00
No. 1 RR. hvy. melting	34.00 to 35.00
Scrap rails, random lgth.	38.00 to 39.00
Rails 2 ft and under	44.00 to 45.00
RR. steel wheels	36.00 to 37.00
RR. spring steel	36.00 to 37.00
RR. couplers and knuckles	36.00 to 37.00
No. 1 machinery cast	42.00 to 43.00
Cupola cast	37.00 to 38.00
Heavy breakable cast	31.00 to 32.00

Chicago

No. 1 hvy. melting	\$33.00 to \$34.00
No. 2 hvy. melting	31.00 to 32.00
No. 1 factory bundles	34.00 to 35.00
No. 1 dealers' bundles	33.00 to 34.00
No. 2 dealers' bundles	24.00 to 25.00
Machine shop turn.	17.00 to 18.00
Mixed bor. and turn.	19.00 to 20.00
Shoveling turnings	19.00 to 20.00
Cast iron borings	19.00 to 20.00
Low phos. forge crops	38.00 to 39.00
Low phos. punch'gs, plate	35.00 to 36.00
Low phos. 3 ft and under	34.00 to 35.00
No. 1 RR. hvy. melting	34.00 to 35.00
Scrap rails, random lgth.	42.00 to 44.00
Rerolling rails	51.00 to 52.00
Rails 2 ft and under	49.00 to 51.00
Locomotive tires, cut	35.00 to 36.00
Cut bolsters & side frames	37.00 to 38.00
Angles and splice bars	41.00 to 43.00
RR. steel car axles	48.00 to 49.00
RR. couplers and knuckles	37.00 to 38.00
No. 1 machinery cast	42.00 to 43.00
Cupola cast	39.00 to 40.00
Heavy breakable cast	32.00 to 33.00
Cast iron brake shoes	34.00 to 35.00
Cast iron car wheels	35.00 to 36.00
Malleable	42.00 to 44.00
Stove plate	31.00 to 33.00

Philadelphia Area

No. 1 hvy. melting	\$29.50 to \$30.50
No. 2 hvy. melting	27.50 to 28.50
No. 1 bundles	29.50 to 30.50
No. 2 bundles	24.00 to 25.00
Machine shop turn.	16.00 to 16.50
Mixed bor. short turn.	18.00 to 19.00
Cast iron borings	18.00 to 19.00
Shoveling turnings	19.00 to 20.00
Clean cast chem. borings	24.00 to 25.00
Low phos. 5 ft and under	32.00 to 33.00
Low phos. 2 ft and under	33.00 to 34.00
Low phos. punch'gs	33.00 to 34.00
Elec. furnace bundles	31.00 to 32.00
Heavy turnings	27.00 to 28.00
RR. steel wheels	32.00 to 33.00
RR. spring steel	32.00 to 33.00
Rails 18 in. and under	43.00 to 44.00
Cupola cast	34.00 to 35.00
Heavy breakable cast	35.00 to 36.00
Cast iron car wheels	38.00 to 39.00
Malleable	36.00 to 37.00
Unstripped motor blocks	27.00 to 28.00
No. 1 machinery cast	40.00 to 42.00
Charging box cast	36.00 to 37.00

Cleveland

No. 1 hvy. melting	\$32.00 to \$33.00
No. 2 hvy. melting	30.00
No. 1 bundles	31.00 to 33.00
No. 2 bundles	25.50 to 26.50
No. 1 busheling	31.00 to 33.00
Machine shop turn.	18.00 to 14.00
Mixed bor. and turn.	19.00 to 20.00
Shoveling turnings	19.00 to 20.00
Cast iron borings	19.00 to 20.00
Cut struct'r'l & plates, 2 ft & under	36.00 to 37.00
Drop forge flashings	31.00 to 33.00
Low phos. 2 ft & under	32.00 to 34.00
No. 1 RR. heavy melting	33.00 to 35.00
Rails 3 ft and under	46.00 to 47.00
Rails 18 in. and under	47.00 to 48.00
Railroad grate bars	27.00 to 28.00
Steel axle turnings	23.00 to 24.00
Railroad cast.	44.00 to 45.00
No. 1 machinery cast	44.00 to 45.00
Stove plate	34.00 to 35.00
Malleable	43.00 to 44.00

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Youngstown

No. 1 hvy. melting	\$33.00 to \$34.00
No. 2 hvy. melting	29.00 to 30.00
No. 1 bundles	33.00 to 34.00
No. 2 bundles	25.00 to 26.00
Machine shop turn.	14.00 to 15.00
Shoveling turnings	21.00 to 22.00
Cast iron borings	21.00 to 22.00
Low phos. plate	34.00 to 36.00

Buffalo

No. 1 hvy. melting	\$30.00 to \$31.00
No. 2 hvy. melting	24.50 to 25.50
No. 1 busheling	30.00 to 31.00
No. 1 bundles	30.00 to 31.00
No. 2 bundles	22.50 to 23.50
Machine shop turn.	15.50 to 16.50
Mixed bor. and turn.	18.50 to 19.50
Shoveling turnings	19.00 to 20.00
Cast iron borings	18.50 to 19.50
Low phos. plate	32.00 to 33.00
Scrap rails, random lgth.	34.00 to 35.00
Rails 2 ft and under	41.00 to 42.00
RR. steel wheels	35.00 to 36.00
RR. spring steel	35.00 to 36.00
RR. couplers and knuckles	35.00 to 36.00
No. 1 machinery cast	40.00 to 41.00
No. 1 cupola cast	36.00 to 37.00

Detroit

No. 1 hvy. melting	\$26.00 to \$27.00
No. 2 hvy. melting	22.00 to 23.00
No. 1 bundles, openhearth	27.00 to 28.00
No. 2 bundles	20.00 to 21.00
New busheling	25.00 to 26.00
Drop forge flashings	25.00 to 26.00
Machine shop turn.	12.00 to 13.00
Mixed bor. and turn.	15.00 to 16.00
Shoveling turnings	15.00 to 16.00
Cast iron borings	15.00 to 16.00
Low phos. punch'gs, plate	26.00 to 27.00
No. 1 cupola cast	34.00
Heavy breakable cast	25.00
Stove plate	30.00
Automotive cast	38.00

St. Louis

No. 1 hvy. melting	\$29.00 to \$30.00
No. 2 hvy. melting	28.00 to 29.00
No. 1 bundles	30.00 to 31.00
No. 2 bundles	23.50 to 24.50
Machine shop turn.	15.50 to 16.50
Cast iron borings	15.50 to 16.50
Shoveling turnings	17.00 to 18.00
No. 1 RR. hvy. melting	33.50 to 34.50
Rails, random lengths	36.00 to 37.00
Rails, 18 in. and under	44.00 to 45.00
Locomotive tires, uncut	32.00 to 33.00
Angles and splice bars	34.00 to 35.00
Std. steel car axles	35.00 to 36.00
RR. spring steel	32.00 to 33.00
Cupola cast	43.00 to 44.00
Heavy breakable cast	32.00 to 33.00
Cast iron brake shoes	36.00 to 37.00
Stove plate	38.50 to 39.50
Cast iron car wheels	32.00 to 33.00
Malleable	35.00 to 36.00
Unstripped motor blocks	32.00 to 33.00

New York

No. 1 hvy. melting	\$24.00 to \$25.00
No. 2 hvy. melting	22.00 to 23.00
No. 2 bundles	18.00 to 19.00
Machine shop turn.	7.00 to 8.00
Mixed bor. and turn.	9.00 to 10.00
Shoveling turnings	11.50 to 12.50
Clean cast chem. borings	18.00 to 19.00
No. 1 machinery cast	35.00 to 36.00
Mixed yard cast	29.00 to 30.00
Charging box cast	29.00 to 30.00
Heavy breakable cast	27.00 to 28.00
Unstripped motor blocks	22.00 to 23.00

Birmingham

No. 1 hvy. melting	\$23.50 to \$24.50
No. 2 hvy. melting	22.50
No. 1 bundles	23.50
No. 2 bundles	17.00 to 18.00
No. 1 busheling	23.50
Machin shop turn.	15.00 to 16.00
Shoveling turnings	16.00 to 17.00
Cast iron borings	16.00 to 17.00
Electric furnace bundles	28.00 to 29.00
Bar crops and plate	30.50 to 31.50
Structural and plate, 2 ft	30.50 to 31.50
No. 1 RR. hvy. melting	28.00 to 29.00
Scrap rails, random lgth.	35.00 to 36.00
Rails, 18 in. and under	39.00 to 40.00
Angles & splice bars	37.50 to 38.50
Rerolling rails	40.00 to 41.00
No. 1 cupola cast	45.00 to 46.00
Stove plate	42.00 to 43.00
Charging box cast	19.00 to 20.00
Cast iron car wheels	32.00 to 34.00
Unstripped motor blocks	35.00 to 36.00
Mashed tin cans	15.00 to 16.00

Boston

Brokers buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$20.00 to \$21.00
No. 2 hvy. melting	16.00 to 17.00
No. 1 bundles	20.00 to 21.00
No. 2 bundles	15.00 to 15.75
No. 1 busheling	20.00 to 21.00
Elec. furnace, 3 ft & under	20.00 to 21.00
Machine shop turn.	6.00 to 7.00
Mixed bor. and short turn.	9.00 to 10.00
Shoveling turnings	10.00 to 11.00
Clean cast chem. borings	13.00 to 14.00
No. 1 machinery cast	29.00 to 30.00
Mixed cupola cast	26.00 to 27.00
Heavy breakable cast	25.00 to 25.50
Stove plate	25.00 to 26.00
Unstripped motor blocks	17.00 to 18.00

Cincinnati

Brokers buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$26.50 to \$27.50
No. 2 hvy. melting	23.50 to 24.50
No. 1 bundles	26.50 to 27.50
No. 2 bundles	20.00 to 21.00
Machine shop turn.	14.00 to 15.00
Mixed bor. and turn.	14.50 to 15.50
Shoveling turnings	14.50 to 15.50
Cast iron borings	14.50 to 15.50
Low phos., 18 in. & under	34.00 to 35.00
Rails, random lengths	38.00 to 39.00
Rails, 18 in. and under	46.00 to 47.00
No. 1 cupola cast	39.00 to 40.00
Heavy breakable cast	35.00 to 36.00
Drop broken cast	44.00 to 45.00

San Francisco

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	16.00
No. 1 bundles	19.00
No. 2 bundles	16.00
No. 3 bundles	13.00
Machine shop turn.	5.00
Shoveling turnings	7.00 to 9.00
Cast iron borings	7.00 to 9.00
No. 1 RR. hvy. melting	20.00
No. 1 cupola cast	\$43.00 to 46.00

Los Angeles

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	16.00
No. 1 bundles	19.00
No. 2 bundles	16.00
No. 3	

24.50
22.50
23.50
18.00
23.50
16.00
17.00
17.00
29.00
31.50
21.50
29.00
26.00
40.00
38.50
41.00
46.00
43.00
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16.00

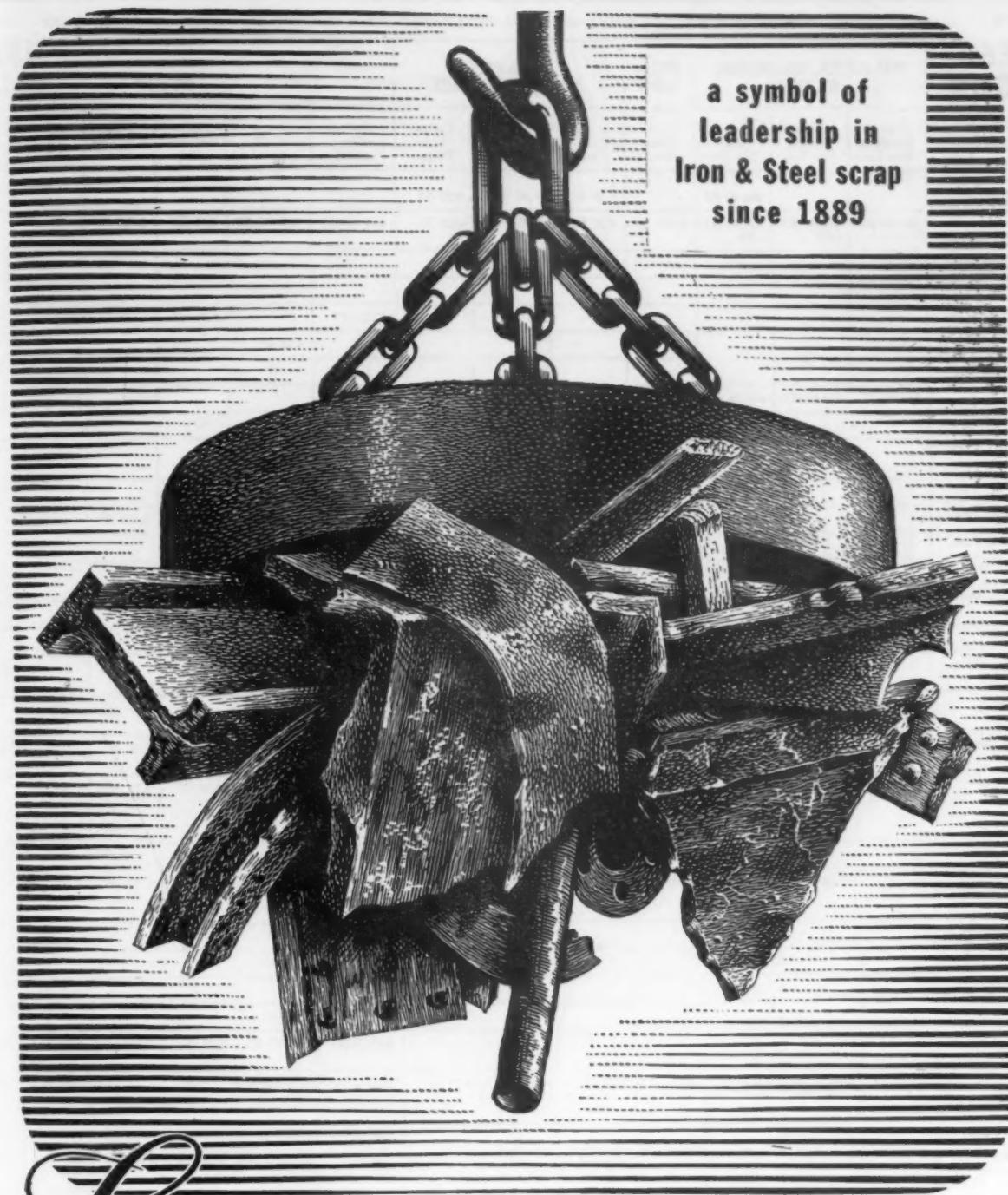
in cars:
\$21.00
17.00
21.00
15.75
21.00
21.00
7.00
10.00
11.00
14.00
30.00
27.00
25.50
26.00
18.00

in cars:
\$27.50
24.50
27.50
21.00
15.00
15.50
15.50
15.50
35.00
39.00
47.00
40.00
36.00
45.00

\$20.00
16.00
19.00
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12.00
5.00
8.00
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46.00

\$20.00
16.00
19.00
16.00
12.00
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9.00
9.00
25.00
20.00
42.00

\$25.00
21.00
20.00
17.00
13.00
35.00
35.00



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PLANTS

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MODENA, PENNA. PITTSBURGH, PENNA.
ERIE, PENNA.

OFFICES

BIRMINGHAM, ALA.	DETROIT, MICHIGAN	PITTSBURGH, PENNA.
BOSTON, MASS.	HOUSTON, TEXAS	PUEBLO, COLORADO
BUFFALO, N. Y.	LEBANON, PENNA.	READING, PENNA.
CHICAGO, ILLINOIS	LOS ANGELES, CAL.	ST. LOUIS, MO.
CLEVELAND, OHIO	NEW YORK, N. Y.	SAN FRANCISCO, CAL.
		SEATTLE, WASH.

STEEL PRICES

(Effective Oct. 5, 1954)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

	BILLETS, BLOOMS, SLABS			PIL- ING	SHAPES STRUCTURALS			STRIP						
	Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton		Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide- Flange	Hot- rolled	Cold- rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot- rolled	Alloy Cold- rolled
EAST	Bethlehem, Pa.					4.30 B3	6.45 B3	4.30 B3						
	Buffalo, N. Y.	\$64.00 B3	\$78.00 B3, R3	\$86.00 B3, R3	5.075 B3	4.30 B3	6.45 B3	4.30 B3	4.05 B3, R3	5.75 B3, R3	6.15 B3	8.425 B3		
	Claymont, Del.													
	Coatesville, Pa.													
	Conshheocken, Pa.													
	New Bedford, Mass.													
	Harrison, N. J.													
	Johnstown, Pa.	\$64.00 B3	\$78.00 B3	\$86.00 B3		4.30 B3	6.45 B3		4.05 B3					
	Fairless, Pa.													
	New Haven, Conn.													
	Phoenixville, Pa.													
	Sparrows Pt., Md.													
	Wallingford, Conn.													
	Worcester, Mass.													
	Pawtucket, R. I.													
	Aiken, S. C.													
	Ashland, Ky.													
	Canton-Massillon, Dover, Ohio													
MIDDLE WEST	Chicago, Ill.	\$64.00 U1	\$78.00 R3, U1, W8	\$86.00 U1, W8, R3	5.075 U1	4.25 U1, W8	6.40 U1, Y1	4.25 U1	4.05 A1, N4, W8	5.85 A1				
	Cleveland, Ohio													
	Detroit, Mich.													
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana	\$64.00 U1	\$78.00 U1	\$86.00 U1, Y1	5.075 I3	4.25 I3, U1	6.40 U1, I3		4.05 I3, U1, Y1	6.00 I3	6.15 U1, I3, Y1	8.60 Y1	8.70 U1, Y1	
	Sterling, Ill.													
	Indianapolis, Ind.													
	Newport, Ky.													
	Middletown, Ohio													
	Niles, Warren, Ohio													
	Sharon, Pa.													
	Pittsburgh, Pa.	\$64.00 U1, J3	\$78.00 J3, U1, C11	\$86.00 U1, C11	5.075 U1	4.25 J3, U1	6.40 J3, U1	4.25 U1	4.05 S7, P6	5.75 B4, J3 S7				
	Midland, Pa.													
	Butler, Pa.													
	Portsmouth, Ohio													
	Wairton, Wheeling, Follansbee, W. Va.													
	Youngstown, Ohio													
WEST	Fresno, Calif.	\$72.00 K1	\$98.00 K1	\$105.00 K1			4.90 K1	7.05 K1	5.25 K1	4.825 K1	7.65 K1	7.25 K1		
	Geneva, Utah													
	Kansas City, Mo.													
	Los Angeles, Torrance, Calif.													
	Minnequa, Colo.													
	San Francisco, Niles, Pittsburg, Calif.													
	Seattle, Wash.													
	Atlanta, Ga.													
	Fairfield, Ala. City, Birmingham, Ala.	\$64.00 T2	\$78.00 T2											
	Houston, Tex.													
SOUTH														

IRON AGE
**STEEL
PRICES**(Effective
Oct. 5, 1954)*Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.*

	SHEETS									WIRE ROD	TINPLATE†	BLACK PLATE	
	Hot-rolled 18 ga. & hvy.	Cold- rolled	Galvanized 18 ga.	Enamel- ing 12 ga.	Long Teme 18 ga.	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot- rolled 19 ga.				
Bethlehem, Pa.													
Buffalo, N. Y.	4.85 B3	4.95 B3				6.10 B3	7.50 B3			4.675 W6			
Claymont, Del.													
Coatesville, Pa.													
Conshohocken, Pa.	4.10 A2					6.15 A2							
Harrisburg, Pa.													
Hartford, Conn.													
Johnstown, Pa.										4.675 B3			
Fairless, Pa.	4.10 U1	5.00 U1				6.15 U1	7.55 U1						
New Haven, Conn.											38.90 U1	37.60 U1	
Phoenixville, Pa.													
Sparrows Pt., Md.	4.85 B5	4.95 B3	5.45 B3			6.10 B3	7.50 B3	8.20 B3		4.775 B3	\$8.90 B3	\$7.60 B3	
Worcester, Mass.										4.975 A5			
Trenton, N. J.													
Alten, Ill.											4.85 L1		
Ashland, Ky.	4.05 A7		5.45 A7	5.375 A7									
Canton-Massillon, Dover, Ohio			5.45 R1, R3							5.175 R1			
Chicago, Joliet, Ill.	4.05 A1, W8					6.10 U1					4.675 A5, N4, R3		
Sterling, Ill.											4.775 N4		
Cleveland, Ohio	4.05 J3, R3	4.95 J3, R3		5.375 R3		6.10 J3, R3	7.50 J3, R3				4.675 A5		
Detroit, Mich.	4.20 G3, M2	5.10 G3				6.25 G3	7.65 G3						
Newport, Ky.	4.05 N5		5.45 N5										
Gary, Ind. Harbor, Indiana	4.05 J3, U1, Y1	4.95 J3, U1, Y1	5.45 U1, J3	5.375 J3, U1	5.85 U1	6.10 U1, J3, Y1	7.50 U1, Y1			4.675 Y1	\$8.80 J3, U1, Y1	\$7.50 J3, U1, Y1	
Granite City, Ill.	4.25 G2	5.15 G2	5.65 G2	5.575 G2								\$7.70 G2	
Kokomo, Ind.	4.15 C9		5.55 C9							4.775 C9		6.40 G2	
Mansfield, Ohio				5.85 E2					5.175 E2				
Middletown, Ohio		4.95 A7		5.375 A7	5.85 A7								
Niles, Ohio Sharon, Pa.	4.05 S1, R3 5.30 N3	4.95 R3 5.975 N3	5.45 N3	6.725 N3	5.85 N3	6.10 S1, R3	7.50 R3				\$8.80 R3	\$7.50 R3	
Pittsburgh, Pa. Midland, Pa. Butler, Pa.	4.05 J3, U1, P6	4.95 J3, U1, P6	5.45 U1	5.375 U1		6.10 J3, U1	7.50 J3, U1	8.20 U1		4.675 A5 4.875 P6	\$8.80 J3, U1	\$7.50 J3, U1	
Portsmouth, Ohio	4.05 P7	4.95 P7								4.675 P7			
Weirton, Wheeling, Fellowsbee, W. Va.	4.05 W3, W5	4.95 W3, W5, F3	5.45 W3, W5		5.85 W3, W5	6.10 W3	7.50 W3				\$8.80 W3, W5	\$7.50 W3, W5	
Youngstown, Ohio	4.05 U1, Y1	4.95 Y1		5.375 Y1		6.10 U1, Y1	7.50 Y1			4.675 Y1			
Fountain, Cal.	4.825 K1	6.05 K1				6.875 K1	8.55 K1			5.475 K1			
Geneva, Utah	4.15 C7					6.45 C7							
Kansas City, Mo.													
Los Angeles, Torrance, Cal.										5.475 C7, B2			
Minneapolis, Colo.										4.925 C6			
San Francisco, Niles, Pittsburg, Cal.	4.75 C7	5.98 C7	6.28 C7							5.325 C7	\$9.55 C7	\$8.25 C7	
Seattle, Wash.													
Atlanta, Ga.													
Fairfield, Ala. Alabama City, Ala.	4.05 R3, T2	4.95 T2	5.45 R3, T2			6.10 T2				5.35 R3	4.675 T2, R3	\$8.90 T2	
Houston, Texas	4.45 S2										5.875 S2		

IRON AGE STEEL PRICES (Effective Oct. 5, 1954)		Bars						Plates			Wire	
		Carbon Steel	Reinfor- cing	Cold Finished	Alloy Hot- rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Migr. Bright
EAST	Bethlehem, Pa.				5.075 B3	6.625 B3	6.45 B3					
	Buffalo, N. Y.	4.30 B3, R3	4.30 B3, R3	5.45 B5	5.075 B3, R3	6.625 B3, B5	6.45 B3	4.225 B3, R3			6.45 B3	5.75 W6
	Claymont, Del.							4.225 C4			5.80 C4	
	Coatesville, Pa.							4.225 L4			5.80 L4	
	Canonsburg, Pa.							4.225 A2	5.275 A2		6.45 A2	
	Harrisburg, Pa.							3.975 C3	5.275 C3			
	Hartford, Conn.			5.90 R3		6.925 R3						
	Johnstown, Pa.	4.30 B3	4.30 B3		5.075 B3		6.45 B3	4.225 B3		5.80 B3	6.45 B3	5.75 B3
	Pittsfield, Pa.	4.45 U1	4.45 U1		5.225 U1							
	Newark, N. J.			5.85 W10		6.80 W10						
	Camden, N. J.			5.85 P10								
	Putnam, Conn.			5.95 W10								
	Sparrows Pt., Md.		4.30 B3					4.225 B3		5.80 B3	6.45 B3	5.85 B3
MIDDLE WEST	Palmer, Worcester, Readville, Massfield, Mass.			5.85 W11 5.95 B5, C14		6.925 A5, B5						6.05 A5, W6
	Alton, Ill.	4.50 L1										5.925 L1
	Ashland, Newport, Ky.							4.225 A7, N5		5.80 N5		
	Canton-Massillon, Massfield, Ohio	4.40 R3		5.40 R2, R3	5.075 R3, T5	6.625 R2, R3, T5		4.225 E2				
	Chicago, Joliet, Ill.	4.30 U1, N4, W8, R3	4.30 N4, R2	5.40 A5, W10, W8, B5, L2	5.075 U1, R3, W8	6.625 A5, W8, W10, L2, B5		4.225 U1, W8, I3, A1, R3	5.275 U1	5.80 U1	6.45 U1	5.75 A5, R3, N4, W7
	Cleveland, Ohio	4.30 R3	4.30 R3	5.40 A5, C13		6.625 A5 6.665 C13	6.45 R3	4.225 J3, R3	5.275 J3		6.45 J3, R3	5.75 A5, C13
	Detroit, Mich.	4.45 R5, G3		5.40 R5 5.60 B5, P8 5.65 P3	5.075 R5 5.225 G3	6.625 R5 6.825 B5, P3, P8	6.60 G3	4.375 G3			6.60 G3	
	Duluth, Minn.											5.75 A5
	Gary, Ind. Harbor, Crawfordville	4.30 I3, U1, Y1	4.30 I3, U1, Y1	5.40 M5, R3	5.075 I3, U1, Y1	6.525 M5 6.625 R3	6.45 U1, I3, Y1	4.225 I3, U1, Y1	5.275 I3	5.80 U1, Y1	6.45 U1, I3, Y1	5.85 M4
	Granite City, Ill.							4.425 G2				
	Kokomo, Ind.											5.85 C9
	Sterling, Ill.	4.40 N4	4.40 N4									5.85 N4
WEST	Niles, Ohio Sharon, Pa.	4.30 R3					6.45 R3	4.225 S1, R3		5.80 S1	6.45 S1	
	Pittsburgh, Pa. Midland, Pa.	4.30 J3, U1, C11	4.30 J3, U1	5.40 A5, C8, C11 J3, W10, B4, R3	5.075 U1, C11	6.625 A5, C11 W10, C8, R3	6.45 J3, U1	4.225 J3, U1	5.275 U1	5.80 U1	6.45 J3, U1	5.75 A5, J1, I6
	Portsmouth, Ohio											5.75 P7
	Weirton, Wheeling, Follansbee, W. Va.	4.30 W3						4.225 W3, W3				
	Youngstown, Ohio	4.30 U1, Y1, C10, R3	4.30 U1, Y1, R3	5.40 F2, Y1, C10	5.075 U1, Y1, C10	6.625 Y1, C10 6.665 F2	6.45 U1, Y1	4.225 U1, Y1, R3		5.80 Y1	6.45 Y1	5.75 Y1
	Emeryville, Cal.	5.05 J5	5.05 J5									
	Fontana, Cal.	5.00 K1	5.00 K1		6.125 K1		7.70 K1	4.875 K1		6.45 K1	7.15 K1	
	Geneva, Utah							4.225 C7			6.45 C7	
	Kansas City, Mo.	4.90 S2	4.90 S2		5.675 S2		7.05 S2					6.35 S2
	Los Angeles, Torrance, Cal.	5.00 B2, C7	5.00 B2, C7	6.85 R3	6.125 B2		7.15 B2					6.70 B2
	Minnequa, Colo.	4.75 C6	4.75 C6					5.075 C6				5.90 C6
	Portland, Ore.	4.90 O2										
	San Francisco, Niles, Pittsburg, Cal.	5.00 C7, P9 5.05 B2					7.20 B2					6.70 C7
	Seattle, Wash.	5.05 B2, P12, N6	5.05 B2, P12				7.20 B2	5.125 B2		6.70 B2	7.25 B2	
SOUTH	Atlanta, Ga.	4.50 A8	4.50 A8									5.95 A8
	Fairfield, Ala. City, Birmingham, Ala.	4.30 T2, C16, R3	4.30 T2, C16, R3				6.45 T2	4.225 T2, R3		6.45 T2	5.75 R3, T2	
	Houston, Ft. Worth, Lone Star, Tex.	4.70 S2	4.70 S2		5.475 S2		6.85 S2	4.55 L3 4.625 S2		6.20 S2	6.85 S2	6.25 S2

Steel Prices

(Effective Oct. 5, 1954)

Key to Steel Producers

With Principal Offices

A1	Acme Steel Co., Chicago
A2	Alan Wood Steel Co., Conshohocken, Pa.
A3	Allegheny Ludlum Steel Corp., Pittsburgh
A4	American Cladmetals Co., Carnegie, Pa.
A5	American Steel & Wire Div., Cleveland
A6	Angell Nail & Chaplet Co., Cleveland
A7	Armo Steel Corp., Middletown, O.
A8	Atlantic Steel Co., Atlanta, Ga.
B1	Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2	Bethlehem Pacific Coast Steel Corp., San Francisco
B3	Bethlehem Steel Co., Bethlehem, Pa.
B4	Blair Strip Steel Co., New Castle, Pa.
B5	Bliss & Laughlin, Inc., Harvey, Ill.
C1	Calstrip Steel Corp., Los Angeles
C2	Carpenter Steel Co., Reading, Pa.
C3	Central Iron & Steel Co., Harrisburg, Pa.
C4	Claymont Products Dept., Claymont, Del.
C5	Cold Metal Products Co., Youngstown, O.
C6	Colorado Fuel & Iron Corp., Denver
C7	Columbia Geneva Steel Div., San Francisco
C8	Columbia Steel & Shafting Co., Pittsburgh
C9	Continental Steel Corp., Kokomo, Ind.
C10	Copperweld Steel Co., Pittsburgh, Pa.
C11	Crucible Steel Co. of America, New York
C12	Cumberland Steel Co., Cumberland, Md.
C13	Cuyahoga Steel & Wire Co., Cleveland
C14	Compressed Steel Shafting Co., Readville, Mass.
C15	G. O. Carlson, Inc., Thorndale, Pa.
C16	Connors Steel Div., Birmingham
D1	Detroit Steel Corp., Detroit
D2	Detroit Tube & Steel Div., Detroit
D3	Driver Harris Co., Harrison, N. J.
D4	Dickson Weatherproof Nail Co., Evanston, Ill.
E1	Eastern Stainless Steel Corp., Baltimore
E2	Empire Steel Co., Mansfield, O.
F1	Firth Sterling, Inc., McKeesport, Pa.
F2	Fitzsimmons Steel Corp., Youngstown
F3	Follansbee Steel Corp., Follansbee, W. Va.
G1	Globe Iron Co., Jackson, O.

G2	Granite City Steel Co., Granite City, Ill.
G3	Great Lakes Steel Corp., Detroit
G4	Greer Steel Co., Dover, O.

H1	Hanna Furnace Corp., Detroit
I2	Ingersoll Steel Div., Chicago
I3	Inland Steel Co., Chicago
I4	Interlake Iron Corp., Cleveland
J1	Jackson Iron & Steel Co., Jackson, O.
J2	Jessop Steel Corp., Washington, Pa.
J3	Jones & Laughlin Steel Corp., Pittsburgh
J4	Joslyn Mfg. & Supply Co., Chicago
J5	Judson Steel Corp., Emeryville, Calif.
K1	Kaiser Steel Corp., Fontana, Cal.
K2	Keystone Steel & Wire Co., Peoria
K3	Koppers Co., Granite City, Ill.
L1	Laclede Steel Co., St. Louis
L2	La Salle Steel Co., Chicago
L3	Lone Star Steel Co., Dallas
L4	Lukens Steel Co., Coatesville, Pa.
M1	Mahoning Valley Steel Co., Niles, O.
M2	McLouth Steel Corp., Detroit
M3	Mercer Tube & Mfg. Co., Sharon, Pa.
M4	Mid-States Steel & Wire Co., Crawfordsville, Ind.
M5	Monarch Steel Co., Inc., Hammond, Ind.
M6	Mystic Iron Works, Everett, Mass.
N1	National Supply Co., Pittsburgh
N2	National Tube Div., Pittsburgh
N3	Niles Rolling Mill Div., Niles, O.
N4	Northwestern Steel & Wire Co., Sterling, Ill.
N5	Newport Steel Corp., Newport, Ky.
N6	Northwest Steel Rolling Mills, Seattle
N7	Newman Crosby Steel Co., Pawtucket, R. I.
O1	Oliver Iron & Steel Co., Pittsburgh
O2	Oregon Steel Mills, Portland
P1	Page Steel & Wire Div., Monessen, Pa.
P2	Phoenix Iron & Steel Co., Phoenixville, Pa.
P3	Pilgrim Drawn Steel Div., Plymouth, Mich.
P4	Pittsburgh Coke & Chemical Co., Pittsburgh
P5	Pittsburgh Screw & Bolt Co., Pittsburgh
P6	Pittsburgh Steel Co., Pittsburgh
P7	Portsmouth Div., Detroit Steel Corp., Detroit

P8	Plymouth Steel Co., Detroit
P9	Pacific States Steel Co., Niles, Cal.
P10	Precision Drawn Steel Co., Camden, N. J.
P11	Production Steel Strip Corp., Detroit
P12	Pacific Steel Rolling Mills, Seattle

R1	Reeves Steel & Mfg. Co., Dover, O.
R2	Reliance Div., Eaton Mfg. Co., Massillon, O.
R3	Republic Steel Corp., Cleveland
R4	Roebling Sons Co., John A., Trenton, N. J.
R5	Rotary Electric Steel Co., Detroit
R6	Rodney Metals, Inc., New Bedford, Mass.
R7	Rome Strip Steel Co., Rome, N. Y.

S1	Sharon Steel Corp., Sharon, Pa.
S2	Sheffield Steel Corp., Kansas City
S3	Shenango Furnace Co., Pittsburgh
S4	Simonds Saw & Steel Co., Fitchburg, Mass.
S5	Sweet's Steel Co., Williamsport, Pa.
S6	Standard Forging Corp., Chicago
S7	Stanley Works, New Britain, Conn.
S8	Superior Drawn Steel Co., Monaca, Pa.
S9	Superior Steel Corp., Carnegie, Pa.

T1	Tonawanda Iron Div., N. Tonawanda, N. Y.
T2	Tennessee Coal & Iron Div., Fairfield
T3	Tennessee Products & Chem. Corp., Nashville
T4	Thomas Strip Div., Warren, O.
T5	Timken Steel & Tube Div., Canton, O.
T6	Tremont Nail Co., Warcham, Mass.
T7	Texas Steel Co., Fort Worth
U1	United States Steel Corp., Pittsburgh
U2	Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3	Ulrich Stainless Steels, Wallingford, Conn.
U4	U. S. Pipe & Foundry Co., Birmingham
W1	Wallingford Steel Co., Wallingford, Conn.
W2	Washington Steel Corp., Washington, Pa.
W3	Weirton Steel Co., Weirton, W. Va.
W4	Wheatland Tube Co., Wheatland, Pa.
W5	Wheeling Steel Corp., Wheeling, W. Va.
W6	Wickwire Spencer Steel Div., Buffalo
W7	Wilson Steel & Wire Co., Chicago
W8	Wisconsin Steel Co., S. Chicago, Ill.
W9	Woodward Iron Co., Woodward, Ala.
W10	Wyckoff Steel Co., Pittsburgh
W11	Worcester Pressed Steel Co., Worcester, Mass.
Y1	Youngstown Sheet & Tube Co., Youngstown

PIPE AND TUBING

Base discounts (per cent) f.o.b. mills. Base price about \$200 per net ton.

	BUTTWELD												SEAMLESS									
	1/2 In.		3/4 In.		1 In.		1 1/4 In.		1 1/2 In.		2 In.		2 1/2-3 In.		2 In.		2 1/2 In.		3 In.		3 1/2-4 In.	
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
STANDARD T. & C.																						
Sparrows Pt. B3	21.75	6.5	24.75	10.5	27.25	14.0	29.75	14.75	30.25	15.75	30.75	16.25	32.25	16.0								
Youngstown R3	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0								
Fontana K1	10.75	+4.5	13.75	+0.5	16.25	3.0	18.75	3.75	19.25	4.75	19.75	5.25	21.25	5.0								
Pittsburgh J3	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0								
Alton, Ill. L1	21.75	6.5	24.75	10.5	27.25	14.0	29.75	14.75	30.25	15.75	30.75	16.25	32.25	16.0								
Sharon M3	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0								
Fairless N2	21.75	6.5	24.75	10.5	27.25	14.0	29.75	14.75	30.25	15.75	30.75	16.25	32.25	16.0								
Pittsburgh N1	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0								
Wheeling W5	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0								
Wheatland W4	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0								
Youngstown Y1	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0								
Indiana Harbor Y1	22.75	7.5	25.75	11.5	28.25	15.0	30.75	15.75	31.25	16.75	31.75	17.25	33.25	17.0								
Lerain N2	23.75	8.5	26.75	12.5	29.25	16.0	31.75	16.75	32.25	17.75	32.75	18.25	34.25	18.0								
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. B3	25.25	11.5	29.25	15.5	31.25	19.0	31.75	17.75	32.25	18.75	32.75	19.25	33.25	18.0								
Youngstown R3	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0								
Fairless N2	25.25	11.5	29.25	15.5	31.25	19.0	31.75	17.75	32.25	18.75	32.75	19.25	33.25	18.0								
Fontana K1	14.25	...	18.25	...	20.25	...	21.25	...	21.75	...	22.25	...	22.75	...								
Pittsburgh J3	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0								
Alton, Ill. L1	25.25	11.5	29.25	15.5	31.25	19.0	31.75	17.75	32.25	18.75	32.75	19.25	33.25	18.0								
Sharon M3	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0								
Pittsburgh N1	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0								
Wheeling W5	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0								
Wheatland W4	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0								
Youngstown Y1	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0								
Indiana Harbor Y1	26.25	12.5	30.25	16.5	32.25	20.0	32.75	18.75	33.25	19.75	33.75	20.75	34.25	19.0								
Lerain N2	27.25	13.5	31.25	17.5	33.25	21.0	33.75	19.75	34.25	20.75	34.75	21.25	35.25	20.0								

Threads only, butt-welded and seamless 2 1/2 pt. higher discount. Plain ends, butt-welded and seamless, 3-in. and under, 4 1/2 pt. higher discount. Butt-weld jobbers' discount, 5 pt. Galvanized discounts based on zinc price in range of over 9¢ to 11¢ incl. per lb, East St. Louis. For each 2¢ change in zinc, discounts vary as follows: 1/2, 3/4 and 1-in., 2 pt.; 1 1/4, 1 1/2, 2-in. pt.; 2 1/2 and 3-in., 1 pt. e.g., zinc price in range of over 11¢ to 13¢ would lower discounts; zinc price in range of

Steel Prices

(Effective Oct. 5, 1954)

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Treated	22-Gage			Hot-Rolled		Cold-Reduced (Coiled or Cut Length)	
								F.o.b. Mill Cents Per Lb	(Cut Lengths)*	Semi- Processed	Fully Processed			
Bessemer <i>U</i>	4.45	5.35	5.425					8.025		8.225				
Se. Chicago <i>R</i>				7.30				8.50		8.75		9.25		
Ensley <i>T</i>	4.45	5.35						9.10		9.35		9.85		
Fairfield <i>T</i>		5.35		7.30		5.275		10.10		10.35		10.85		
Gary <i>U</i>	4.45	5.35				5.275		11.00		11.25		11.75		
Ind. Harbor <i>I</i>	4.45		5.425	7.30		5.275		11.95		12.20		12.70		
Johnstown <i>B</i>		5.35						12.50						
Joliet <i>U</i>		5.35	5.425											
Kansas City <i>S</i>				7.30										
Lackawanna <i>B</i>	4.45	5.35	5.425			5.275								
Minnequa <i>C</i>	4.45	5.85	5.425	7.30		5.275	11.50							
Pittsburgh <i>O</i>					11.00		11.50							
Pittsburgh <i>P</i>					11.00		11.50							
Pittsburgh <i>J</i>				7.30										
Seattle <i>B</i>					7.80		5.425	11.50						
St. Louis <i>B</i>	4.45		5.425			5.275								
Struthers <i>Y</i>				7.30										
Torrance <i>C</i>						5.425								
Williamsport <i>S</i>	5.35			7.30										
Youngstown <i>R</i>														

ELECTRICAL SHEETS

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Treated	22-Gage		Hot-Rolled	Cold-Reduced (Coiled or Cut Length)		
								F.o.b. Mill Cents Per Lb	(Cut Lengths)*	Semi- Processed	Fully Processed		
Field								8.025		8.225			
Armature								8.50		8.75		9.25	
Elect.								9.10		9.35		9.85	
Motor								10.10		10.35		10.85	
Dynamo								11.00		11.25		11.75	
Trans. 72								11.95		12.20		12.70	
Trans. 65								12.50					
Trans. 53								13.00		Trans. 80		16.60	
Trans. 52								14.00		Trans. 73		17.10	

Producing points: Bessemer (*W*); Braddock (*A*); Granite City (*G*); Indiana Harbor (*I*); Mansfield (*E*); Newport, Ky. (*N*); Niles, O. (*N*); Vandergrift (*U*); Warren, O. (*R*); Zanesville (*A*). * Coils 75¢ higher.

Stainless-carbon		Plate	Sheet
No. 304, 20 p.c.			
Coatesville, Pa., <i>L</i>			*33.20
Washington, Pa., <i>J</i>			
Claymont, Del., <i>C</i>			
New Castle, Ind., <i>I</i>			32.50
Nickel-carbon			
10 p.c. Coatesville, Pa., <i>L</i>			38.30
Inconel-carbon			
10 p.c. Coatesville, Pa., <i>L</i>			46.90
Mono-carbon			
10 p.c. Coatesville, Pa., <i>L</i>			39.70

* Includes annealing and pickling, sandblasting.

WARE-HOUSES

City	Delivery Charge	Sheets		Strip		Plates		Shapes		Bars		Alloy Bars			
		Hot-Rolled	Cold-Rolled (15 gage)	Hot-Rolled	Cold-Rolled	Hot-Rolled	Cold-Rolled	Hot-Rolled	Cold-Finished	Hot-Rolled	Cold-Rolled	A 415	A 4140	A 4140	A 4140
Baltimore	\$.20	6.22	7.51	7.78	6.89	6.57	6.92	6.88	8.52						
Birmingham	.15	6.35	7.35	8.25	6.60	9.60	6.65	6.65	6.50	9.00					
Boston	.10	7.23	8.23	9.42	7.47	9.65	7.34	7.49	7.20	8.60	12.60	12.45	15.15	15.10	
Buffalo	.20	6.35	7.46 ³	8.03	6.70	6.65	6.70	6.50	7.85 ³	12.50	12.15 ³	14.85	14.75		
Chicago	.20	6.38	7.38	8.38	6.62	6.52	6.69	6.51	7.50	12.25	11.90	14.60	14.55		
Cincinnati	.15	6.49	7.37	8.25	6.86	6.81	6.91	6.75	7.80	12.55	12.15	14.90	14.80		
Cleveland	.20	6.38	7.38	8.38	6.62	6.52	6.69	6.51	7.50	12.25	11.90	14.60	14.55		
Denver		7.85	8.85	10.02	8.20	7.95	7.95	8.05	9.05						
Detroit	.20	6.57	7.57	8.50	6.90	6.80	6.85	7.16	6.79	7.77	12.45	12.10	14.80	14.75	
Houston	.20	7.35	7.65	9.93	7.70	7.35	7.60	7.70	9.50						
Kansas City	.20	7.05	8.05	8.85	7.29	7.19	7.36	7.18	8.07						
Los Angeles	.20	7.40	9.25	9.85	7.75	7.35	7.55	7.35	10.05						
Memphis	.10	6.79	7.69		6.90	7.01	7.09	6.88	8.24						
Milwaukee	.20	6.47	7.47	8.21	6.71	6.61	6.86	6.60	7.69	12.34	11.99	14.69	14.64		
New Orleans	.15	6.70	7.65	9.23	6.80	6.90	7.05	6.80	8.70						
New York	.10	6.97	7.78	8.79 ¹	7.36	7.18	7.13	7.30	8.63	12.63	12.28		14.93		
Norfolk	.20	6.98	8.46	8.99	7.56	7.27	7.38	7.37	8.73 ²						
Philadelphia	.10	6.19	7.29 ³	8.09 ⁴	6.96	6.49	6.54	6.74	8.19 ³						
Pittsburgh	.20	6.38	7.38	8.30	6.72	6.52	6.69	6.51	7.85	12.25	11.90	14.60	14.55		
Portland	.20	7.60	8.75	9.05	7.85	7.45	7.50	7.55	10.95						
Salt Lake City	.20	7.65	10.20	10.70	9.05	7.70	7.70	8.80	10.95						
San Francisco	.20	7.55	8.95	9.35	7.80	7.40	7.50	7.35	10.05						
Seattle	.00	8.10	9.80	10.15	8.20	7.80	7.75	7.90	10.95						
St. Louis	.20	6.62	7.67	8.54	6.91	6.81	7.09	6.80	7.89	12.54	12.19	14.84	14.45		
St. Paul	.15	7.03	8.03	8.96	7.28	7.19	7.35	7.16	8.26						

Base Quantities (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets for quantity. Exceptions: (1) 1500 to 9999 lb. (2) 1000 lb or over. (3) \$25 delivery. (4) 1000 to 1999 lb. \$25 delivery.

To identify producers, see Key on preceding page.

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails			
	Col	Col	Col	Col
* Alabama City <i>R</i>	137	146	155	159 6.90 7.30
Aliquippa, Pa. <i>J</i>	137	149	156	16.90 7.425
Atlanta <i>A</i>	139	151	157	164 7.00 7.55
Bartonsville <i>K</i>	139	151	157	164 7.00 7.55
Buffalo <i>W</i>				
Chicago, Ill. <i>N</i>	137	149	155	162 6.90 7.45
Cleveland <i>A</i>	142	151	157	161 7.00 7.55
Cleveland <i>A</i>	142	151	157	161 7.00 7.55
Columbus <i>C</i>	137	146	155	159 6.90 7.30
Danora, Pa. <i>A</i>	137	146	155	159 6.90 7.30
Duluth <i>A</i>	137	146	155	159 6.90 7.30
Fairfield, Ala. <i>T</i>	137	146	155	159 6.90 7.30
Galveston <i>D</i>	139			
Houston <i>S</i>	145	154	167	17.30 7.70
Johnstown, Pa. <i>B</i>	137	149	162	16.90 7.45
Joliet, Ill. <i>A</i>	137	146	155	159 6.90 7.30
Kokomo, Ind. <i>C</i>	139	148	157	161 7.00 7.55
Las Angeles <i>B</i>				7.85
Kansas City <i>S</i>	148	158	167	171 7.50 7.90
Minnequa <i>C</i>	142	156	160	168 7.15 7.55
Moneses <i>P</i>	137	151		163 6.90 7.45
Moline, Ill. <i>R</i>				145
Pittsburgh, Cal. <i>C</i>	156	169	179	179 7.85 8.25
Portsmouth <i>P</i>				6.90 7.30

Miscellaneous Prices

(Effective Oct. 5, 1954)

TOOL STEEL

F.o.b. Mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	\$1.54
18	4	1	—	5	2.245
18	4	2	—	—	1.705
1.5	4	1.5	8	—	.90
6	4	2	6	—	1.29
High-carbon chromium					.78
Oil hardened manganese					.405
Special carbon					.37
Extra carbon					.31
Regular carbon					.26
Warehouse prices on and east of Mississippi are 3.5¢ per lb higher. West of Mississippi, 5.5¢ higher.					

CAST IRON WATER PIPE

Per Net Ton					
6 to 24-in., del'd Chicago	\$111.80	to \$115.30			
6 to 24-in., del'd N. Y.	115.00	to 116.00			
6 to 24-in., Birmingham	98.00	to 102.50			
6-in. and larger f.o.b. cars, San Francisco, Los Angeles, for all rail shipments; rail and water shipments less	\$129.50	to \$131.50			
Class "A" and gas pipe, \$5 extra; 4-in. pipe is \$5 a ton above 6-in.					

LAKE SUPERIOR ORES

51.50% Fe; natural content, delivered lower Lake ports. Prices effective July 1, 1953, to end of 1954 season.

Gross Ton

Openhearth lump	\$11.15
Old range, bessemer	10.20
Old range, nonbessemer	10.15
Mesabi, bessemer	10.05
Mesabi, nonbessemer	9.90
High phosphorus	9.90

Prices based on upper Lakes rail freight rates, Lake vessel freight rates, handling and unloading charges, and taxes thereon, in effect on June 24, 1953. Increases or decreases after such date are for buyer's account.

COKE

Furnace, beehive (f.o.b. oven)	Net-Ton Connellsville, Pa.	\$14.25 to \$14.50
Foundry, beehive (f.o.b. oven)	Connellsville, Pa.	\$16.50 to \$17.00
Foundry, oven coke	Buffalo, del'd	\$28.08
	Chicago, f.o.b.	24.50
	Detroit, f.o.b.	25.50
	New England, del'd	26.05
	Seaboard, N. J., f.o.b.	24.00
	Philadelphia, f.o.b.	23.00
	Swedenland, Pa., f.o.b.	23.00
	Painesville, Ohio, f.o.b.	25.50
	Erie, Pa., f.o.b.	25.00
	Cleveland, del'd	27.43
	Cincinnati, del'd	26.56
	St. Paul, f.o.b.	23.75
	St. Louis, f.o.b.	26.00
	Birmingham, f.o.b.	22.65
	Lone Star, Tex., f.o.b.	18.50

ELECTRODES

Cents per lb, f.o.b. plant, threaded, with nipples, unboxed

GRAPHITE			CARBON		
Diam.	Length (In.)	Price	Diam.	Length (In.)	Price
24	64	20.50	40	100, 110	8.95
20	72	20.00	35	110	8.95
12 to 18	72	20.50	30	110	8.95
7 to 10	80	21.00	24	72 to 84	9.10
8	60	23.25	20	80	8.95
4	40	26.00	17	72	8.95
3	40	27.25	14	72	9.50
2 1/2	30	28.00	10, 12	60	10.30
2	24	43.50	8	60	10.55

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Machine and Carriage Bolts

		Discount
Less	Case	C.
1/2 in. & smaller x 4 in. & shorter	2	22
1/2 in. & smaller x 6 in. & shorter	3	18
9/16 in. & 5/8 in. x 6 in. & shorter	4	17
5/8 in. & larger x 6 in. & shorter	6	15
All diam. longer than 6 in.	15	8
1/2 in. & smaller x 6 in. & shorter	3	18
Lag, all diam. x 6 in. & shorter	6	25
Lag, all diam. longer than 6 in.	3	19
Flow bolts	23	23

Stove Bolts

Packaged, package list... 41-44 1/2-10
Bulk, bulk list*... 56-59
* Minimum quantity per item: 15,000 pieces lengths to 3"; 5,000 pieces lengths over 3". Special finishes: Zinc, Parkerized, cadmium or nickel add 8¢ per lb net. Black oil finish add 2 1/2¢ per lb net.

Nuts, H.P., C.P., reg. & hvy.

Discount		
Base		
Discount or Keg		
5/8" or smaller	55	64
5/8" to 1 1/2" inclusive	58	66
1 1/2" to 1 1/2" inclusive	60	67 1/2

C.P. Hex regular & hvy.

All sizes... 55 64

Hot Galv. Nuts (all types)

5/8" or smaller	38	50
5/8" to 1 1/2" inclusive	41	52 1/2

Finished, Semi-finished, Slotted or Cassetted Nuts

All sizes... 55 66

Rivets

	Base per 100 lb
1/2 in. & larger	\$9.25
7/16 in. and smaller	37

Cap Screws

	Discount
H.C. Heat	
Bright	

New std. hex head, packed...

5/8" x 6" and shorter

5/8", 3/4", 1" x 6" and shorter

New std. hex head, bulk...

5/8" x 6" and shorter

5/8", 3/4", 1" x 6" and shorter

* Minimum quantity per item: 15,000 pieces 5/8", 5/16", 3/8" diam.

5,000 pieces 7/16", 1/2", 9/16", 5/8" diam.

2,000 pieces 3/4", 5/8", 1" diam.

** Minimum quantity per item: 15,000 pieces per item.

Machine Screws

Packaged, gross list... 31-36 —10

Bulk, bulk list*... 11-17 —

* Minimum bulk quantity, 15,000 pieces per item.

** Minimum bulk quantity, 15,000 pieces per item.

REFRACTORIES

Fire Clay Brick

Carloads per 1000

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5.00) \$114.00

No. 1 Ohio 107.00

No. 2 Ohio 98.00

Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.50) 17.00

Fire Clay Brick

Carloads per 1000

Standard quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5.00) \$120.00

Standard quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5.00) 125.00

Western Utah 100.00

California 100.00

Hays, Pa., Athens, Tex., Windham 137.00

Curtner, Calif. 155.00

Silica cement, net ton, bulk, Eastern (except Hays, Pa.) 20.00

Ferroalloy Prices

(Effective Oct. 5, 1954)

Ferrochrome

Contract prices, cents per lb contained Cr, lump, bulk, carloads, del'd, 65-72%	65-72%
Cr, 2% max Si	
0.025% C .. 36.00	0.15% C .. 33.75
0.025% C, .. 36.00	0.20% C .. 33.50
Simplex .. 34.50	0.50% C .. 33.25
0.06% C .. 34.50	1.00% C .. 33.00
0.10% C .. 34.00	2.00% C .. 32.75
65-69% Cr, 4-9% C ..	24.75
62-66% Cr, 4-6% C, 6-9% Si ..	25.60

S. M. Ferrochrome

Contract prices, cents per pound, chromium contained, lump size, delivered.	
High carbon type: 60.55% Cr, 4-6% Si, 4-6% Mn, 4-6% C.	
Carloads	25.85
Ton lots	28.00
Less ton lots	29.50

High Nitrogen Ferrochrome

Low-carbon type 67-72% Cr, 0.75% N.	
Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 3¢ for each additional 0.25% of N.	
Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.	
0.10 max. C ..	\$1.18
0.50% max. C ..	1.16
9 to 11% C ..	1.25

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.)	
Contract price, carloads, f.o.b. Niagara Falls, freight allowed, lump 4-in. x down, 24.75¢ per lb contained Cr plus 12.00¢ per lb contained Si. Bulk 2-in. x down, 25.05¢ per lb contained Cr plus 10.80¢ per lb contained Si. Bulk 1-in. x down, 25.25¢ per lb contained Cr plus 11.00¢ per lb contained Si.	
Contract price per lb of alloy, lump, delivered.	
30-33% Cr, 60-65% Si, 3.00 max. Fe.	
Carloads	19.00
Ton lots	22.10
Less ton lots	23.60

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.	
16-20% Ca, 14-18% Mn, 53-59% Si.	
Carloads	20.00
Ton lots	22.30
Less ton lots	23.30

SMZ

Contract prices, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe 1/2 in. x 12 mesh.	
Ton lots	17.50
Less ton lots	19.50

V Foundry Alloy

Contract per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.	
Carload lots	16.60
Ton lots	18.10
Less ton lots	19.35

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.	
Carload packed	17.50
Ton lots to carload packed	18.50
Less ton lots	20.00

Ferromanganese

Maximum contract base price, f.o.b., lump size, base content 74 to 76 pct Mn: Producing Point	Cents per-lb
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	9.50
Clairton, Pa.	9.50
Sheridan, Pa.	9.50
Philo, Ohio	9.50
Add or subtract 0.1¢ for each 1 pct Mn above or below base content.	
Briquets, delivered, 66 pct Mn: Carloads, bulk	12.05
Ton lots packed	13.65

Spiegeleisen

Contract prices, per gross ton, lump, f.o.b. Palmerton, Pa.	
Manganese Silicon	
16 to 19% 3% max.	\$84.00
19 to 21% 3% max.	86.00
21 to 23% 3% max.	88.50
23 to 25% 3% max.	91.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.	
95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.	
Carload, packed	45.00
Ton lots	43.50

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.	
Carloads	30.00
Ton lots	32.00
250 to 1999 lb	34.00
Premium for hydrogen-removed metal	0.75

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn	21.35¢
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Low-Carb Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%.	
Carloads Ton Less	
0.07% max. C, 0.06% P, 90% Mn	32.00 33.85 35.05
0.07% max. C	29.95 31.80 33.80
0.15% max. C	28.45 30.30 31.50
0.30% max. C	26.95 28.80 30.00
0.50% max. C	26.45 28.30 29.50
0.75% max. C, 80-85% Mn, 5.0-7.0% Si	23.45 25.30 26.50

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mo, 18-20% Si, 1.5% max. C for 2% max. C. deduct 0.2¢.	
Carload bulk	11.00
Ton lots	12.65
Briquet contract basis carlots, bulk, delivered, per lb of briquet	12.65
Ton lots, packed	14.25

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$92.00 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$89.50. Add \$1.00 per ton for each additional 0.50% Si up to and including 17%. Add \$1.45 for each 0.50% Mn over 1%.	
Ton lots	19.50
Less ton lots	17.50
Carload, bulk, lump	18.00
Ton lots, packed lump	16.75
Less ton lots, lump, packed	17.25

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, packed.	
Ton lots Carloads	
96% Si, 2% Fe	20.10 18.00
97% Si, 1% Fe	20.60 18.50

Silicon Briquets

Contract price, cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si briquets.	
Carloads, bulk	6.75
Ton lots	8.35

Electric Ferrosilicon

Contract price, cents per lb contained Si, lump, bulk, carloads, delivered.	
25% Si	20.00 75% Si .. 14.40
50% Si	12.00 85% Si .. 16.10
65% Si	13.50 90% Si .. 17.25

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.	
Cast Turnings Distilled	
Ton lots	\$2.05 \$2.95 \$3.75
Less ton lots	2.40 3.30 4.55

Ferrovanadium

35-55% contract, basis, delivered, per pound, contained V.	
Openhearth	\$3.00-\$3.10
Crucible	3.10-3.20
High speed steel (Primos) ..	3.20-3.25

Alsifer, 20% Al, 40% Si, 40% Fe, Contract basis, f.o.b. Suspension Bridge, N. Y., per lb.	
Carloads	9.25
Ton lots	10.15

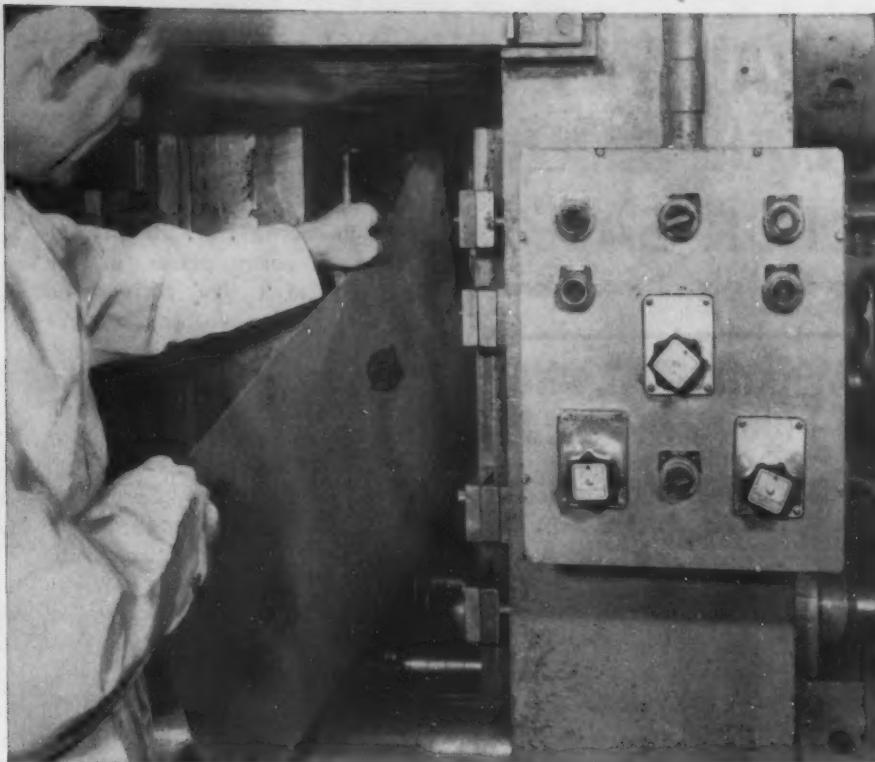
Calcium molybdate, 46.3-46.6% f.o.b. Langloch, Pa., per pound contained Mo	\$1.15
Ton lots	12.00

Ferro-columbium, 50-60%, 2 in. x D contract basis, delivered per pound contained Cb	\$1.00
Ton lots	12.00
Less ton lots	12.00

Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, contract basis, del'd, ton lots, 2-in. x D per lb cont'd Cb plus Ta	\$6.25
Ton lots	12.00

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THE CLEARING HOUSE

News of Used and Rebuilt Machinery

Sell as Scrap . . . Recent increases of scrap prices in the Cleveland area are giving the smallest used machinery dealers there a chance to do some long-delayed house cleaning and also make a little money at it. Although overall sales remain very slow, dealers with almost no exception report their customers are continuing their optimistic outlook.

One small dealer last week told THE IRON AGE that many ancient machines can now be bought for about \$75 each. These include turret lathes, drill presses, hammers, etc. From these, dealers currently realize about \$90 scrap value as well as about \$2.50 for motors drives reducing gears and other accessories.

But major benefit is that dealers now have a chance to clean out their storage space to make room for better machines now becoming available.

Largest segment of the used machinery market in Cleveland appears to be sheet metal equipment such as rolls, shears, press brakes and punch presses. In many cases sheet metal shops turning out products such as fender skirts, stove parts, light fittings and railings are getting into larger classes of equipment.

Most of these firms have enjoyed success with used machinery and now trade in their smaller equipment for larger types. Tools such as sheet metal rolls, 10-ft shears, and 50-60-ton punch presses are currently becoming a little tight because of this tendency.

Prices Are Firm . . . The overall price outlook on late model equipment is still firm but considerable minor price negotiating is done to undersell competition offered prices from out-of-area dealers. One Cleveland dealer last week said he had been offered a Milwaukee horizontal milling machine from a New York dealer

for \$275. A year ago this would have cost the dealer \$800 and his selling price would probably be \$1200.

Special machines such as thread gages, special length drill presses and similar special equipment are still at a premium mostly for replacements on breakdowns.

Larger sized press brakes in the 500-ton class are also finding a ready market in the Cleveland area. Some are becoming available through closing of fabricating shops and equipment to handle larger jobs.

More Rebuilding . . . Machinery dealers are extremely anxious to see the government speed up its machine tool revamping program. First orders for the special \$100 million government machine tool buying program will probably be placed in November or December, though this of course is by no means the end limit to the tool purchases Defense Dept. currently plans.

As part of this program, the military services are taking stock of the machine tools they currently own (which some estimates place as high as 400,000 items).

Undoubtedly some of these will have to be discarded and others will have to be rebuilt to put them back in good condition. It is in this phase of the government's machine tool program that rebuilders hope to cash in on, so they are anxious for the government to move as rapidly as possible.

As far as rebuilders are concerned, a little "nudge" program couldn't come at a better time because right now business is slack.

Dealers Meet . . . New York-New England Chapter of the Machinery Dealers National Assn. was scheduled to hold its first fall meeting of the year on Mon., Oct. 4, at Schwartz's Restaurant in New York.